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OCT 20 1919
JAMES D. M.

BILL OF COMPLAINT

IN THE SUPREME COURT OF THE UNITED STATES

ORIGINAL, NO. ~~25~~ ~~28~~ ~~19~~ ~~15~~ ~~17~~ ~~6~~ 4

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO

OCTAVIANO A. LARRAZOLO,
FRANK W. CLANCY,
Counsel for Complainant.

IN THE SUPREME COURT OF THE UNITED STATES

ORIGINAL NO.

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO

To the Honorables, the Chief Justice and Associate Justices of the Supreme Court of the United States:

The State of New Mexico, by Octaviano A. Larrazolo and Frank W. Clancy, Special Counsel, employed to represent the said State in the prosecution of this suit, presents this, its bill of complaint, against the State of Colorado and respectfully complaining shows unto this honorable court, that the ground upon which the court's jurisdiction of the matters hereinafter set forth, depends, is that this bill of complaint sets out a controversy between the said two States of which this court has original jurisdiction.

Your orator further shows that by the legislation of Congress under which the State of Colorado was admitted into the Union of States, and by the constitution of the State of New Mexico under which the said State of New Mexico was admitted into the Union of States, the southern boundary line of said State of Colorado and the northern boundary line of the State of New Mexicoextends along the 37th parallel of north latitude from the intersection of said parallel with the 32nd meridian of longitude west from Washington in an easterly direction to the point where said parallel of latitude intersects the 103rd meridian of longitude west from Greenwich.

Your orator further shows that on the 7th day of July, 1902, Howard B. Carpenter, a United States surveyor, entered into a contract with the United States to well, truly and faithfully re-survey, re-establish and re-mark the boundary line between Colorado and the territories of New Mexico and Ok

lahoma, the same being that portion of the parallel of thirty seven degrees of north latitude lying between the 25th and 32nd degrees of longitude west from Washington, and in pursuance of said contract and the instructions given to him by the acting Commissioner of the General Land Office, the said Carpenter did thereafter proceed to re-survey, re-establish and re-mark the said boundary line as will appear by the record and field notes of his work, a copy of which together with a copy of said instructions from the acting commissioner of the General Land Office, so far as that record and field notes cover that portion of the 37th parallel of north latitude which constitutes the boundary between the States of Colorado and New Mexico, is hereto attached and made a part hereof, which field notes, having been examined and found correct, were approved by the commissioner of the General Land Office, as appears by his certificate to that effect attached to the said field notes hereinbefore referred to.

Your orator further shows that the line surveyed and established by the said Carpenter as shown by his field notes is the true and correct boundary line between the said two states, but that the defendant State of Colorado in disregard of that boundary line and not respecting the rights of your orator has usurped jurisdiction over a considerable amount of territory south of said line and has unlawfully levied and collected taxes upon property south of said line and through its courts has attempted to exercise both civil and criminal jurisdiction over persons and property lying south of said line; but your orator further shows that it is unable to state how far to the south of the said boundary line the State of Colorado claims jurisdiction, which acts, doings, pretenses and claims of the State of Colorado are contrary to equity and good conscience and tend to the manifest wrong, injury and oppression of your orator and of its citizens and owners of property within its boundaries.

Wherefore, being without remedy except by an original proceeding in this honorable court, where matters of this nature are, under the constitution of the United States, properly cognizable and relievable, and to the end that the State of Colorado full, true and perfect answer may make to all and singular the matters aforesaid, (but not under oath, answer under oath being hereby expressly waived), as fully and particularly as if the same were here repeated and the defendant distinct

ly interrogated thereto, and that the said boundary line surveyed, established and marked by the said Howard B. Carpenter as set out and shown in the field notes of his survey, a copy of which is attached hereto as hereinbefore stated, be by this honorable court decreed to be the true boundary line between the States of New Mexico and the State of Colorado along the parallel of 37 degrees of north latitude, and that your orator may have such further or other relief as the nature of the case may require and to the court shall seem meet.

May it please the court to grant unto your orator such process issuing out of and under the seal of this honorable court as may be appropriate to require the said defendant, the State of Colorado to be and appear before this court, then and there to answer the said premises and to abide by and perform such order and decree as to the court shall seem meet and proper.

STATE OF NEW MEXICO,
By Octaviano A. Larrazolo,
and Frank W. Clancy,
Its Special Counsel.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE

SPECIAL INSTRUCTIONS FOR RESURVEY
OF
SOUTH BOUNDARY OF COLORADO

Washington, D. C. July 7th, 1902.

Mr. Howard B. Carpenter,
U. S. Surveyor,
Kenwood, California.

Sir:

Having entered into a contract on the 7th day of July, 1902, with the United States, to "well, truly and faithfully re-survey, re-establish and re-mark the boundary line between COLORADO and the Territories of NEW MEXICO and OKLAHOMA, the same being that portion of the parallel of thirty-seven degrees of North latitude lying between the 25th

and 32nd degrees of West longitude, for Washington, "you will be governed in the execution in the execution of said resurvey by the terms of your contract and the manual of instructions of 1902, wherever applicable and these special instructions.

You will begin your re-survey by proceeding to a point not less than 20 miles east of the corner established and recognized as the SW corner of Colorado near which point you will select a convenient and suitable site for an astronomical station and take careful obser vations for latitude. When full and accurate determinations are accomplished you will measure to the parallel erect an astronomical monument of the size and material prescribed in your contract. From this monument you will run a random line due west and note the falling upon the said SW corner, after which you will correct your line back as a true line setting mile corners as prescribed in the contract.

Thence you will proceed east along the said parallel, running your line by the usual method of setting off tangents to the parallel based upon careful meridional observations. You will verify the establishment of the parallel by observations for latitude taken upon stars north and south of the zenith. The observations for this purpose will be taken from at least eight astronomical stations along the line, the 1st at the 20-mile point as above instructed, the remainder at intervals of about 50 miles, and an equal number of astronomical monuments erected. These monuments will consist of a shaft of stone at least 6 feet in length and 12 inches in thickness, dressed on each face 6 inches to receive the inscriptions which will be as follows:

On the E face 37 N. L. and the year.
On the N face Colo.
On the S face N. Mex. or Okla.
On the W face the dist. from the Western extremity to the monument.

These astronomical monuments may stand in place of the eight-mile corners if practicable to place them.

When observations for latitude are taken at astronomical stations, and the results shows that the position of your line is in error in excess of three seconds of arc, the line should be corrected back so as to bring it within this limit.

In the event of the above number of astronomical monu-

ments being established along the line, the eighth monument will be set at a theoretical distance of 17 miles west of the eastern extremity of the line on the SE corner of Colorado. From this monument you will run a random line to the recognized corner to Colorado and Kansas, and if falling be less than 3 chains you will correct the line back connecting the said monument with the said corner by a straight line.

Should the closing be in excess of 3 chains, you will set a closing corner on the west boundary line of Kansas, or on the prolongation thereof, marking the same CC with appropriate letters, for this closing corner which will stand for the SE corner of Colorado, a dressed stone should be provided. It should be 3 ft. in length, 10 inches square and be inscribed, if set to the north of the riginal corner,

On the NW face Col.
On the SW face Okla.
On the SE face C C.
On the NE face Kan.,

and if set to the south of the original corner, the same markings except that the letters KAN will be omitted.

You are required to exercise the utmost care in the determination of meridians by repeated observations, and the projection therefrom of tangents to the parallel, the mean of not less than three careful and complete observations must be taken in determining such alignments. Due care must be taken in the extension of tangents, by reversion of instruments and other means in ordinary use for counteracting the growth of accumulative errors, and lines must be clear of ordinary obstruction to correct observations.

Each corner will consist of a wrought iron pipe three inches in diameter, 4 ft. long, made of 1/8 inch iron, having two flanges opposite each other at the bottom, each projecting 3 inches, the pipe to be surmounted by a cap or head of brass 3½ inches in diameter, having a sleeve of about an inch in length which will admit of the insertion of the pipe, the head to be secured to the pipe by a bolt 1/4 inch in diameter passing through openings in the pipe and sleeve and held in place by a nut 3/16 inches in thickness, the head of the bolt to be hammered after the nut is in place in order to prevent its slipping off, or its forcible removal. The brass cap will have letters COLO. and N. M. (or OKLA. when Oklahoma is reached), cast upon its surface, and between these two words the num-

ber of the mile corner is stamped. The pipe will be planted 2 feet in the ground and have the earth firmly tamped around it, so as to secure its rigidity and prevent withdrawal. A mound of earth or stone or both earth and stone will be built around the pipe 1 1/2 feet high, and 3 ft. diameter, and pits will be dug 6 ft. distant, N. S. E. and W. 36 inches square 18 inches deep; corners are to be further witnessed by trees when trees over 5 inches in diameter are found within 5 chains of the corner, four trees to each corner will be taken where this number can be found within limits. They will be marked with the letters COLO when north of line, and N. M. or OKL. when south of the line, together with the number of mile corner which they witness, and the letters B. T.

Bearing objects when available within 5 chains—such as a cliff or wall—will be taken, the course and distance ascertained, and they will be marked with a cross, together with the letters COLO. N. M. as the case may be, the number of the mile and the letters B. O. In case of witness corners the same methods will be followed and the markings will have in addition the letters W. C.

In triangulation work if done by the ordinary engineer's transit, repetitions of angles should be made in opposite directions in order to eliminate as far as possible, errors from clamp and axis movements. The telescope should be inverted for half the repetitions to avoid errors arising from the line of sight not being perpendicular to the horizontal axis, and from the horizontal axis not being perpendicular to the vertical axis.

Measurements will be made by either chaining or by stadia-rods, when by the former, two sets of chainmen operating independently of each other will be employed.

This method will be used on level ground where long sights are obtained. Stadia measurements may be taken when mountainous and rugged ground is encountered.

Gunter's steel chain with brazen links, or a steel tape may be used in chaining. A standard chain or tape should be carried and used only for comparison with the field chains which should be tested daily.

In measuring distances by stadia the errors made in reading the rod, if it be properly graduated, will be from reading the position of the wires, and accuracy is further affected by the condition of the atmosphere.

On inclined sights the distance read on the rod will be reduced to the horizontal by proper tables or diagrams, and when the atmosphere is hazy or unsteady from the effects of heat, care should be taken to shorten up the sights. The error of closure should not be greater than one in 500.

Offset angles to the parallel must be made with accuracy, and where the offset distances exceed one chain, they shall be twice measured as in the case of the tangents.

Where by reason of some peculiarity or irregularity of the surface, a mile corner or monument cannot be established in proper position, it will be erected at some suitable advanced point on the line, its inscribed distance from the true point made to correspond, and in so placing it preference should be given a safe as well as a conspicuous point near a pass, road, or river crossing.

Offsets and bases for triangulations will be measured with great care and the requirements of the manual.

You are required to provide yourself with suitable equipments and means of obtaining supplies adequate to a continuous prosecution of the work, and the ordinary wants of your employes. You will associate with yourself an astronomer who has had field experience in the establishment of similar boundary lines, and who can be relied upon to furnish to you reliable and accurate data, for the proper location of points on the 37th parallel.

You will provide yourself with such astronomical and field instruments of approved construction and accuracy of adjustment as may be necessary in accurately determining meridians, parallels of latitude, tangent extensions and triangulations. This office will provide a zenith telescope for your use on this survey, which instrument will be returned to this office in good order at the determination of the field work. In the transportation of said instruments and their various removals on the line, no pains must be spared tending to their preservation in the best possible adjustment and working order.

Examinations for adjustment of the instruments in use must be made at the commencement of each day's work, weather permitting, necessary corrections made and a record of such examinations entered in the field notes under proper dates.

Notes of position and sketches of all important topo-

graphical features on and in the vicinity of the boundary, must be taken as the survey progresses, and such conspicuous distant point on the boundary.

Where lines of public surveys have been closed upon the Darling line, you will not attempt to eradicate the closing corners, but will endeavor to find and obliterate all evidences of the mile corners re-established by subdividing and other deputy surveyors in restoring the position of the Darling line.

You will, however, leave standing the monuments now standing on the line between Colorado and Oklahoma, except those set by Darling. All evidences of corners or monuments set by Darling on south boundary of Colorado will be carefully obliterated.

Upon completion of the survey in the field, you will prepare triplicate copies of the field and astronomical notes thereof, properly indexed, headed, typewritten and securely bound, with the preliminary and final oaths.

You will also prepare in triplicate upon mounted paper, upon a scale of two miles to an inch, a neatly and clearly executed diagram or map of the survey, showing the boundary line and the topography thereon. The duplicate and triplicate may be photographs of the original, but on the same scale and be mounted.

Very respectfully,
(Signed) W. A. RICHARDS,
Acting Commissioner.

DEPARTMENT OF THE INTERIOR,
C. L. D. B.

GENERAL LAND OFFICE.

WASHINGTON.

Washington, D. C., Sept. 9, 1903.

Mr. H. B. Carpenter,
U. S. Surveyor,
Cheyenne, Wyoming.

Dear Sir:

The report of F. M. Johnson, Examiner of Surveys, of his examination of your re-survey of the south boundary of

Colorado under your contract, dated July 7th, 1902, has been received. This report shows that you have made a good survey of this line, that the mile corners are of the character required by the contract and properly set and witnessed.

Between the 5th and 6th astronomical stations there seems to be such a deflection from a true east line as would indicate that one of these monuments was not upon the 37th parallel of latitude.

In order to test their location, Mr. Arthur D. Kidder, an Examiner of Surveys of this office, was instructed to go to your astronomical station No. 6, and by astronomical observations determine its location as to latitude. This he has done, with the result that the monument at this station was found to be 3″ of arc north of the 37th parallel. As this is exactly the closing limit allowed upon this survey, it is surmised that you placed this monument where it is through a misunderstanding of your instructions.

It was the intention of this office that the monuments erected at astronomical stations should be placed on the 37th parallel, as determined by the observations, and that the line should close upon them with 3″ of arc.

If it is true that you placed the monument where your line fell, although that may have been within the closing limit, but not upon the parallel, it will be necessary for you to return to the field and place any such monuments so located upon the parallel. While this will leave your line within the closing limits, it is suggested that at least four mile corners, both east and west of monument No. 6, should be corrected in order to avoid the angle that would otherwise exist at this point.

If it is necessary to change the location of other monuments, please correct the line on either side of them in the same manner, the number of mile corners moved being in proportion to the distance which the monument is moved compared with monument No. 6.

Mr. Kidder will test the latitude of the monument at station No. 5, and endeavor to determine the cause of the deflection of the line between that monument and No. 6.

Mr. Johnson's report shows that the eastern terminus of your line is at a point 40.34 chs., north of the southwestern corner of Kansas as now established.

As these points should be coincident, it is important that

the terminus of your line should be upon the 37th parallel as near as it is possible to fix it. That this may be done, Mr. Kidder has been instructed to proceed to that point and determine its latitude. If it should appear as a result of his observations that your terminal monument is not upon the 37th parallel, I have to request that you place it there and make such corrections of the line east of that point, as may be necessary. Mr. Kidder is now in the field and when this reaches you, should be at the 5th monument observing for latitude. His temporary address while there will be Trinidad. I suggest that you join him as soon as convenient. Any further instructions that may be necessary as the result of his examination will be furnished by telegraph.

I regret the necessity for your returning to the field and feel that you are being called upon to do more than your contract requires, but your work has heretofore been of such a high character and this is so good that I feel that you would rather be imposed upon to this extent than have this survey marred by these slight defects.

Very truly yours,
(Signed) W. A. RICHARDS,
Commissioner.

NAMES AND DUTIES OF ASSISTANTS.

1902.

Augustus MacConnell	Assistant Astronomer
L. B. Neighbor	Transitman
E. Potter Lockwood	Chainman
Walter Stone	Chainman
Ernest G. Spinney	Chainman
Linus Olson	Chainman
C. D. Carpenter	Moundman
J. W. Miller	Moundman
Charles Windquist	Moundman
Grover C. Bowman	Axman
O. J. Bowman	Axman
Wm. D. Skinner	Rodman
J. L. Wentz	Flagman
J. G. Myers	Flagman
Oscar McClellan	Master of Transportation
C. W. Hooper	Photographer

Arthur L. Broadhead	Teamster
Chas. H. Spencer	Chief Packer
R. B. Maupin	Packer
Sam Kinsey	Packer
C. M. Holiday	Cook
W. D. Saylor	Cook

NAMES AND DUTIES OF ASSISTANTS.

1903.

Oscar McClellan	Transitman
Walter Stone	Chainman
William L. Horton	Chainman
Clarence Holliday	Chainman
Potter Lockwood	Chainman
C. D. Carpenter	Moundman
Charles Windquist	Moundman
Linus Olson	Moundman
Harry Weiner	Axman
Silas S. Weiner	Axman
E. P. Blanchard	Rodman
Fred F. Lockwood	Flagman
William A. Pinckard	Flagman
Charles H. Spencer	Master of Transportation
Arthur Spencer	Packer
Clarence Broadhead	Cook
E. P. Blanchard	Chainman, October, 1903
F. E. Wright	Chainman
Andrew Ferrara	Moundman

1902.

PRELIMINARY OATHS OF ASSISTANTS.

I Augustus MacConnell; do solemnly swear that I will well and faithfully perform the duties of Assistant Astronomer in the establishment of Latitude 37° degrees North on the Re-survey of the South Boundary of the State of Colorado.

(Signed) AUGUSTUS MacCONNEL.

(*SEAL*) Assistant Astronomer.

Subscribed and sworn to before me this 17th day of September, 1902.

(Signed) HENRY BAUER,
Notary Public.

I, Lambert B. Neighbor, do solemnly swear that I will well and faithfully perform the duties of Transitman according to the instructions given me and to the best of my skill and ability in the Re-survey of the South Boundary of the State of Colorado.

(Signed) LAMBERT B. NEIGHBOR,
(*SEAL*) Transitman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

We, Potter Lockwood, Ernest G. Spinney, Walter Stone and Linus Olson, do solemnly swear that we will well and faithfully execute the duties of chainman; that we will level the chain on even and uneven ground, and plumb the tally pins either by sticking or dropping same; that we will report the true distances to all notable objects and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with the instructions given us, in the re-survey of the South Boundary of the State of Colorado.

(Signed) POTTER LOCKWOOD, Chainman.
ERNEST G. SPINNEY, Chainman.
WALTER STONE, Chainman.
(*SEAL*) LINUS OLSON, Chainman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

We Charles D. Carpenter, J. W. Miller and Charles Windquist do solemnly swear that we will well and truly perform the duties of moundmen in the establishment of corners, according to the instructions given us, to the best of our ability

and skill, in the re-survey of the South Boundary of the State of Colorado.

(Signed) CHARLES D. CARPENTER, Moundman.
J. W. MILLER, Moundman.
his
CHARLES (X) WINDQUIST, Moundman.
(SEAL) mark

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

We, O. J. Bowman and Grover C. Bowman, do solemnly swear that we will well and truly perform the duties of axman, in the establishment of corners and other duties, according to the instructions given us, and to the best of our skill and ability, in the re-survey of the South Boundary of the State of Colorado.

(Signed) O. J. BOWMAN, Axman.
(SEAL) G. C. BOWMAN, Axman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

I, Wm. D. Skinner, do solemnly swear that I will faithfully perform the duties of Rodman according to the instructions given me, and to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Wm. D. SKINNER,
(SEAL) Rodman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

We, J. G. Myers and J. L. Wentz, do solemnly swear that we will well and truly perform the duties of Flagman according to instructions given us, and to the best of our skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) J. G. MYERS, Flagman.
(SEAL) J. L. WENTZ, Flagman.

Subscribed and sworn to before me this 2nd day of October, 1902.

(Signed) HENRY BAUER,
Notary Public.

1903.

PRELIMINARY OATHS OF ASSISTANTS.

I, Oscar McClellan, do solemnly swear that I will well and faithfully perform the duties of Transitman, according to the instructions given me and to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) OSCAR McCLELLAN,
(*SEAL*) Transitman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, Clarence Holliday, Potter Lockwood, W. L. Horton and Walter Stone, do solemnly swear that we will well and faithfully execute the duties of chainman; that we will level the chain on even and uneven ground and plumb the talley pins either by sticking or dropping the same; that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with instructions given us, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) C. E. HOLLIDAY, Chainman.
(*SEAL*) POTTER LOCKWOOD, Chainman.
W. L. HORTON, Chainman.
WALTER STONE, Chainman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, C. D. Carpenter, Charles Windquist and Lines Olson, solemnly swear that we will well and truly perform the duties of Moundmen, in the establishment of corners, according to

the instructions given us to the best of our skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) C. D. CARPENTER, Moundman.

His

(SEAL) CHARLES X WINDQUIST, Moundman.

Mark

LINUS OLSON, Moundman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, Silas S. Weimer and Harry Weimer, do solemnly swear that we will well and truly perform the duties of axman, in the establishment of corners, and other duties, according to the instructions given us, and to the best of our skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) SILAS S. WEIMER, Axman.

(SEAL) HARRY WEIMER, Axman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

I, Ed. P. Blanchard, do solemnly swear that I will faithfully perform the duties of Rodman, according to the instructions given me, and to the best of my skill and ability in the Re-survey of the South Boundary of the State of Colorado.

(Signed) ED. P. BLANCHARD,

(SEAL) Rodman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, Fred F. Lockwood and W. A. Pinckard, do solemnly swear that we will well and truly perform the duties of Flagmen, according to instructions given us, and to the best of our skill and ability in the Re-survey of the South Boundary of the State of Colorado.

(Signed) FRED F. LOCKWOOD, Flagman.

(SEAL) W. A. PINCKARD, Flagman.

Subscribed and sworn to before me this 20th day of April, 1903.

(Signed) J. D. FRAZEY,
Notary Public.

We, Ed. P. Blanchard and F. E. Wright, do solemnly swear that we will well and faithfully execute the duties of chainmen; that we will level the chain on even and uneven ground, and plumb the tally pins, either by sticking or dropping the same; that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with the instructions given us, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) ED. P. BLANCHARD, Chainman.
F. E. WRIGHT, Chainman.

Subscribed and sworn to before me this 1st day of October, 1903.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

I, Andrew Ferrara, do solemnly swear that I will well and truly perform the duties of moundman in the establishment of corners, according to the instructions given me, to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) ANDREW His X Mark FERRARA,
Moundman.

Subscribed and sworn to before me this 1st day of October, 1903.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

DESCRIPTION OF INSTRUMENTS.

Astronomical observations were made with a Wurdemann Zenith telescope, 25 ins. focal length and 2.1 ins. aperture.

This instrument was loaned me by the Department of the Interior.

The line was projected with a transit made for me especially for this line by Young and Sons of Philadelphia, Pa.

It has a six-inch horizontal limb graduated to 30′ of arc, and reading to single minutes by two double verniers placed opposite to each other. The vertical limb is five inches in diameter graduated to 30′ of arc and reading by vernier to single minutes.

The instrument also has the Smith Solar attachment. The telescope is provided with stadia wires placed at the ratio of 1 in 100.

Two Philadelphia levelling rods 7 ft. long and sliding to 13 ft. graduated to feet, tenths and hundredths, and reading by vernier on target to thousandths of a foot.

Two steel tapes 1-4 inch wide and 66 ft. or 1 chain in length, graduated to links.

One standard Chesterman Steel tape for comparison and adjustment of measuring tapes

Two rod levels or plumb levels, used for guides in holding the rod vertical.

Two Aneroid Barometers, one 2 3-4 inch, with thermometer and one 2 inch.

Two Chronometers belonging to Mr. MacConnel, Hiatt No. 1051, Sidereal time, and Barraud No. 333 mean time.

Pursuant to instructions received from the Hon. the Commissioner of the General Land Office, Binger Hermann bearing date Washington, D. C., July 7th, 1902, I proceeded to Mancos, Colorado, perfected my organization of the astronomical corps and went to a point on the line between Colo. and N. Mex., as established by E. N. Darling in 1868; the point being near his 313th mile and at his astronomical monument No. 10, which is a block of sandstone about 10x15 ft. and 10 ft. high, marked Colorado on N., 1868 on E., N. Mex. on S. and 37 N. L. on W. from which another block of sandstone bears N. 29 W. 130 lks. dist. marked Colorado 1868.

I destroyed the marks on these stones. The corner on the rolling sand plain south of the Mancos River at the foot of rock cliffs about 600 ft. high.

My instructions direct me to "proceed to a point not less than 20 miles E. of the corner established and recognized as the SW. cor. of Colorado, near which point you will select a convenient and suitable site for an astronomical station; and take careful observations for latitude." It was found to be impracticable to establish the astronomical station

further east than the Darling Astronomical Monument as it would place said station either in a deep canon subject to down currents of air or upon a high mesa the nearly perpendicular walls of which rise to a height of about 600 ft., making it impracticable to transport the Zenith telescope up the cliffs.

Astronomical Station No. 1 was established in open rolling country about two miles south of the Mancos River to the west and near the foot of cliffs of rock about 600 ft. high. The Darling Astronomical monument No. 10 bears S. 81° E. 11.51 chs. dist.

Set the iron pier for the Zenith telescope at this point and took observations during the nights of Sept. 21st, 22nd and 23rd, 1902.

Found the latitude of this point to be 36° 59' 53.16".

October 6th, 1902. Reached Astronomical Station No. 1 with the line party. Examined and adjusted the new Young and Son's transit, tested the tapes and stadia rods and put all tools and instruments in perfect adjustment.

At 6h 29m P. M., l. m.t. I observe Polaris at eastern elongation and mark a point in the line thus found on a plug driven in the ground about 12 chs. N. of my station, Oct. 6th, 1902.

Oct. 7th, 1902 at 8h A. M. I lay off the azimuth of Polaris 1° 31.1' to the W. and mark a point in the true meridian thus found on a plug driven in the ground about 12 chs. N. of my station. The magnetic bearing of said true meridian is N. 14° 06' W. which gives the magnetic declination 14° 06' E.

I now run N. on this meridian 19.48 chs. to a point on the 37th parallel of N. Lat., determined by astronomical observation of Sept. 21st to 24th last.

From this point I lay off an angle from the meridian of 90° to the W. for the tangent to the parallel. In each of these observations and the subsequent turning of angles the mean of four sights was taken reversing the instrument at each sight.

Thence I run W. on a random line making the proper offsets N. to the parallel at the end of each mile, and at 16 miles and 70.85 chs. I intersect a meridian that passes through the point known as "The Four Corners," it being the SW. cor. of the State of Colorado, the NW. cor of the Territory of New Mexico, the NE cor. of the Territory of Arizona, and

the SE. cor of the State of Utah, and being identical with the point closed upon at the terminus of the Boundary line between the State of Utah and the Territory of Arizona recently established by me. This cor. consists of a pile of stone in the center of which is the lower part of the corner stone 7x7 ins. firmly imbedded in the ground.

The upper part of this stone has been broken off since my visit to this corner June 29th, 1901. The fragments are still here and most of the marks are still visible upon them.

Altitude 5500 ft.
Temperature 60°.
The bearings are as follows:
Chimney Rock on the Latra Mts. bears N. 45° 40′ E. about twenty miles distant.
Darling's Peak on the Latra Mts. bears N. 36° 53′ E.
Wilson's Peak (Ship Rock) bears S. 28° 12′ E.
NW. point of Sierra Carriso bears S. 54° 00′ W.
Conical point on mesa bears N. 37° 20′ W.
Conical point on N. end of this mesa bears N. 52° 20′ E. 28.65 chs. distant.

Said cor. is 4.45 chs. S. of the intersection with my tangent and as the offset to the 37th parallel is 2.18 chs. N. of the tangent at this point it shows a falling of 6.63 chs. S. of the parallel. This answers to a correction of 40 lks. per mile in order to strike the parallel at a point 20 miles E. and gives the course of the true line N. 89° 46′ E.

Oct. 9th at 6h 17m P. M., l.m.t. I observe Polaris at eastern elongation at "The Four Corners," and mark a point in this line on a stone about 15 chs. N. of my station.

Oct. 9th, 1902.

Oct. 10th, 1902, I examine the transit and find it in perfect adjustment, compare the steel tapes with the standard and find them of correct length.

At 7h 30m A. M. I lay off the azimuth of Polaris 1° 31.1′ to the W. and mark a point on the true meridian thus determined on a stone about 15 chs. N. of my station.

The magnetic bearing of the said true meridian is N. 14° 08′ W. this gives the magnetic declination 14° 08′ E.

Thence I run on the

——1st mile——

ALTITUDE	CHS.	
5500 ft.		N. 89° 46' E. on the true line Across a flat mesa covered with black lave rock.
	18.00	East edge of mesa bears N. and S. ascend rocky volcanic ridge bears N. and S.
5600 ft.	20.88	Top of ridge about 100 ft. high, bears N. and S., descend over broken volcanic rock.
	42.00	Foot of ridge about 450 ft. below top. Enter San Juan Valley bears NW., and SE. thence over rolling sandy plain.
		I find that the 1st mile cor. will fall in bend of San Juan River. Therefore, difference between measurements of 74.00 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 74.03 chs.
		By 2nd set 73.97 chs. the mean of which is
5000 ft.	74.00	I set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 4 ins. in the ground to bed rock for 1st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on the S. and O. 925M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable. No bearings.
		This cor. stands on the left bank of the San Juan River on a rock ledge about 25 ft. above the water, bank bears NW. and SE. about 10 chs. then NE.
		Altitude 5000 ft.
		Temperature 80°.
	75.23	W bank of San Juan River, course from NE. to NW. Stadis measurement across bend of river.
		The Stadia wires in the instrument are placed at ratio of 1 to 100 and by using either of them in connection with the horizontal cross wire equals 1 to 200. Stadia rods are graduated in feet, tenths and hun-

dredths, and reading by vernier on targets to thousandths of a foot. Rod held in a vertical position as indicated by rod level. The constant C. = focal length of lens which for this instrument is 1.15 ft. when the telescope is level and proportional when the telescope is elevated or depressed. See further explanation in report.

Angles of elevation marked +.

Angles of depression marked —.

Von Geldern's table of constants used for computing horizontal distances.

Angle 0°. Rod 11.49 double = 22.98 ft. 22.98 ft. + C. = 1.15=2299.13 ft.=34.83 chs. +75.23 chs.=110.06 chs—80.00 chs.=30.06 chs. on 2nd mile.

80.00 Falls in river inaccessible.

Land, mountainous and rolling.

Soil, rocky and sandy, 4th rate.

Vegetation, very scanty, a little grease wood.

——2nd mile——

N. 89° 46' E. on a true line.

30.06 On left bank of San Juan River, a rocky bank about 30 ft. high bears NE. and SW. Thence by tape measurement over gently rolling sandy plain.

Difference between measurements of 49.94 chs. by 2 sets of chainmen is 4 lks.; position of middle point

By 1st set 49.96 chs. by 2nd set 49.92 chs., the mean of which is 49.94 chs.

49.94 chs. + 30.06 chs. =

5040 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in rocky ground for 2nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 2M. stamped on the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable. No bearings.

Land rolling plain.

Soil, sandy and rocky.
Vegetation very scanty, some greasewood.
Altitude 5040 ft.
Temperature, 34°.

——3rd mile——

N. 89 46' E. on true line.

4.37 River bluff bears NW. and SE. about 40 ft. above river.
Stadia measurement,
Angle 3°—; Rod 9.76 ft. single = 976 ft.
Constant. 9973×9 76=973.35+C.=1.15=
974.50 ft.=14.76 chs.+4.37 chs.=19.13 chs.

17.00 Edge of water W. side of river, 1.50 chs. wide, course N. Water very muddy about 4/ft. deep, swift current.

19.13 Right bank of river, about 5 ft. high, bears N. and S. Enter cottonwood timber.

24.00 Leave timber, enter sagebrush flat, bears N. and S.

72.00 Leave sagebrush flat, bears NW. and SE. ascend.

74.00 Top of spur slope S. 50 ft. high, descend.
Difference between measurements of 65.24 chs. by 2 sets of chainmen is 21 lks. position of middle point
By 1st set 65.25 chs.
By 2nd set 65.23 chs, the mean of which is 65.24 chs.
65.24 chs. + 14.76 chs.

5050 ft. 80.00 Set an iron pipe 3 ins. dia. four feet long with flanges at the bottom 2 ft in the ground at foot or rocky slope for 3rd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 3M stamped in the center.
Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable. No bearings.
This cor. stands at foot of steep rocky slope on N. side of rocky canon.
Land, rolling river bottom and bluffs.
Soil, sandy and rocky, 2nd and 4th rate.

Vegetation, cottonwood timber and sage brush.
Alt. 5050 ft. Temp. 70°.

4th mile

N. 89° 46' E. on a true line.

2.00 Bottom of dry canon, course SW. ascend.

22.00 Top of bluff about 150 ft. high, bears S. about 6 chs., thence SW. and on N. side of line NE.

51.50 Deep narrow dry canon, course S. Coal cropping near bottom.

77.00 Top of spur slope S.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.

By 2nd set 79.97 chs. the mean of which is

5250 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in ground for 4th mile cor. A brass cap on the top of the pipe has raised letters Colo. on the N., N.M. on the S., and 4M stamped in the center.
Dug pits 36x36x18 ins. N.S.E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Ship Rock bears S. 19° 30' E. about 20 miles dist.
Land, rough and broken.
Soil, rocky and sandy, 4th rate.
Vegetation, stunted greasewood.
Land underlaid with at least one vein of bituminous coal.
Alt. 5250 ft.
Temp. 70°.

5th mile

N. 89° 46' E. on the true line.
Descending over rolling land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 80.02 chs.
By 2nd set 79.98 chs. the mean of which is

5150 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 5th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 5M. stamped in the center.
Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Chimney Rock on the Latra Mts. bears N. 34° 10′ E.
Land, rolling.
Soil, sandy, 3rd rate.
Vegetation, scanty, grass and greasewood.
Alt. 5150 ft.
Temp. 65°. Oct. 10th, 1902.

Oct. 11th. Examined the adjustments of the transit and compared the steel tapes with the standard; found everything in adjustment this morning.

6th mile

N. 89° 46′ E. on a true line.
Ascend gradually over rolling land.

10.70 Top of ridge bears N. and S. 50 lks. S. I find what I believe to be Darling's 325th mile cor. stone. A sandstone 16x10x6 ins. marked 325C. NM. 1868. This stone was lying on top of the ground and had probably been moved from its original position. No sign of mound or pits in this vicinity. I searched the country thoroughly on both sides of my line from the four corners back to Mr. Darling's astronomical monument No. 10 near his 313th mile cor, and this is the only object I succeeded in finding bearing any of the Darling marks except the said astronomical monument and its bearing rock. I destroyed the marks on this stone.
Descend.

5150 ft.	31.60	Top of bluff W. bank of Mancos River about 30 ft. high, bears N. and S. An ancient ruin of stone circular in shape bears S. about 7.00 chs.
5075 ft.	34.50	Bed of Mancos River, 50 lks. wide, water in holes strongly alkali, course S.
	37.60	Top of E. bank of river bears N. and S. about 30 ft. high thence across the sage brush flat.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs; the mean of which is
5200 ft.	80.00	Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 6th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 6 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. from cor. 6 ft. dist. and raised a mound of earth 5 ft base 2 ft high around the post.
		Chimney Rock bears N. 30 14' E.
		Land, rolling.
		Soil, sand and clay 3rd rate.
		Vegetation, grass, sage and greasewood, some willow brush along the stream.
		Alt. 5200 ft.
		Temp. 65°.

—7th mile—

N. 89° 46' E. on a true line. Ascend.

	3.00	Foot of ridge bears N. and S. Leave Mancos River Valley.
	10.76	Top of spur slope N. Descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs; the mean of which is
5210 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for

7th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 7M stamped in the center, and raised a mound of stone 5 ft. base 2 ft. high around the post.
No bearings. Pits impracticable.
This cor. stands on NW. slope of gulch.
Land, rolling.
Soil, sandy and stony, 3rd rate.
Vegetation, grass and sage.
Alt. 5210 ft.
Temp. 60°.

8th mile

N. 89° 46′ E. on a true line.
Over rolling hills.

53.50 Bottom of dry ravine, course NW, ascend.

64.00 Brow of hill bears NE. and SE, descend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs. the mean of which is

5200 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 8th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 8M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
This cor. stands on S. slope of bad land hill on a coal cropping.
Land, rolling, bad land hills.
Soil, sandy and clay, 3rd rate.
Vegetation, grass and stunted sage, cactus and soapweed.
Alt. 5200 ft. Temp. 60°.

9th mile

N. 89° 46′ E. on a true line.
Descending.

18.00 Enter small valley, bears NW. and SE.

5150 ft. 25.00 Bottom of dry gulch banks 10 ft. high, course NW.

54.75 Leave valley bears NW. and S. Ascend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is

5380 ft. 80.00 Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 8th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S and 8 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around post.
Chimney Rock bears N. 19° 33' E.
Jackson's Butte bears N. 58° 25' E.
Land, rolling.
Soil, sandy and clay, 3rd rate.
Vegetation, grass and stunted sage.
Alt. 5380 ft.
Temp. 60°.

G

——10th mile——

N. 89° 46' E. on a true line.

2.00 Ascend high spur slope N., descend.

6.30 Brow of bluff bears N. and S.

23.00 Bottom of dry ravine course N., 100 ft deep, ascend.

5350 ft. 28.00 Point of spur slope N., descend.

5250 ft. 40.00 Bottom of dry ravine, course NW, ascend.

5350 ft. 48.00 On brow of bluff bears NW. and SE. Fossiliferous sandstone ledges with indications of coal underneath.

78.00 Dry gulch course N.
Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is

5250 ft. 80.00 Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 10th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 10 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around post.
This cor. stands on point of spur sloping N.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage, very scanty.
Alt. 5250 ft.
Temp. 56°.

—11th mile—
N. 89 46′ on a true line.
Descend.
5.00 Dry gulch, course NW.
5300 ft. 12.00 Top of ridge bears NW. and SE.
65.00 Dry gulch course NW.
Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is
5260 ft. 80.00 Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 11th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 11 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around post.
Chimney Rock bears N. 12° E.
Jackson's Butte bears N. 52° 40′ E.
Camel-back Butte bears S. 69° 31′ E.
Land gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, sage and cactus.
Alt. 5260 ft.
Temp. 56°. Oct. 11th, 1902.

I test the adjustments of the transit and

compare the steel tapes with the standard. Find everything correct and in adjustment.

12th mile

N. 89° 46′ E. on a true line descending.

3.00 Bottom of dry ravine, course NW., thence up general course of same.

5230 ft. 22.00 Leave ravine comes from SE. Ascend along SW. slope.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point.

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

5300 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 12th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N. M., on S. and 12 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.

Chimney Rock bears N. 7° 34′ E.

Jackson's Butte bears N. 48° E.

Camel-back Butte bears S. 65° 27′ E.

Wilson's Peak (Ship Rock) bears S. 0° 46′ W.

Land, gently rolling.

Soil, sand and clay, 3rd rate.

Vegetation, sage and cactus.

Alt. 5300 ft.

Temp. 70°.

13th mile

N. 89° 46′ E. on a true line.

Over gently rolling land.

Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is

5360 ft. 80.00 Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 13th mile cor. A brass cap on the top

of the pipe has raised letters Colo on N., N.M. on S. and 13 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Mancos River about 1½ miles N.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, sage, greasewood and cactus.
Alt. 5360 ft.
Temp. 70

14th mile

N. 89° 46' E. on a true line.
Over gently rolling land.
Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point.
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is
5350 ft. 80.00 Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 14th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 14 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage, greasewood and cactus, very scanty.
Some grass will grow on this land when the season is not too dry.
Altitude 5350 ft.
Temp. 70

15th mile

N. 89° 46' E. on a true line.
Over gently rolling land.
43.00 Wagon road from Montezuma Valley to the

San Juan bears NW. and SE.
Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is

5340 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 15th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 15 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base, 2 ft. high around the post.
Chimney Rock bears N. 3° W.
Jackson's Butte bears N. 29° 30' E.
Camel back Butte bears S. 31° 30' E.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, very scanty greasewood.
Alt. 5340 ft.
Temp. 70°

16th mile.

N. 89° 46' E. on a true line.
Over gently rolling land.

1.00 Trail, bears N. and S.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks; position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

5225 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 16th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M on S. and 16 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, sage and greasewood.

Alt. 5225 ft.
Temp. 70°. Oct. 12th, 1902.

I examine the adjustments of the transit and compare the steel tapes with the standard, and find all correct this morning.

17th mile.

N. 89° 46' E. on a true line.
Ascending gradually
1.50 Dry gulch, course NW.
52.00 Road from Navajo Spring (Ute Agency) to Fruitland bears NW. and SE.
.01 Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is
5330 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 17th mile cor. A brass cap on the top of the pipe, has raised letters Colo on N., N.M. on S. and 17 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Chimney Rock bears N. 13° 03' W.
Jackson's Butte bears N. 11° 01' E.
NW. point of high cliff bears S. 5° 24' E. about ½ mile dist.
Camel back Butte bears S. 22° 18' W.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, very scanty, greasewood and cactus.
Alt. 5330 ft.
Temp. 48

18th mile.

N. 89° 46' E. on a true line.
Leave valley and ascend along N. slope over sharp ridges coming from south wall of canon.

19.40 Top of sharp spur, slope N. about 300 ft above last mile cor. South wall of canon about 5 chs. S. Bottom of canon about 15 chs. N. North wall of canon about 3/4 of a mile N.
Thence along very steep N. slope.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is

5300 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 18th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 18 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable. This cor stands at foot of slope in gulch, course N.
Land, rough and broken.
Soil, clay and sand, very rocky, 4th rate
Vegetation, scanty sage and greasewood.
Alt. 5300 ft.
Temp. 60°.

19th mile.

N. 89° 46' E. on a true line.
Along foot of slope from S. wall of canon over dry gulches running North.
Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 10.05 chs.
By 2nd set 79.95 chs.; the mean of which is

5350 ft. 80.00 Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for 19th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 19 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

This cor. stands in dry gulch, course N.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage, very scanty.
Alt. 5350 ft.
Temp. 70 .

20th mile

B. S9 46' E. on a true line.
Ascend over rolling and broken ground.
Difference between measurements of 34.09 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 34.10 chs.
By 2nd set 34.08 chs.; the mean of which is
5300 ft. 34.09 Stadia measurement,
Angle 11 ; Rod 10.81 double = 21.62 ft.
Constant. 96.36×21.62 ft.=2082.30 ft.+C.=1.13=2084.43 ft.=31.58 chs.+34.09 chs.=65.67 chs.
50.00 Dry bed of stream, 20 lks. wide, 10 ft. deep. bottom of canon, course NW.
55.00 Foot of rock cliffs bears NW. and SE.
5750 ft. 65.67 Stadia point, top of cliffs, bears NW. and SE. about 450 ft high; thence over mesa enter scrub cedar and pinon timber.
Thence by tape measurement.
Difference between measurements of 14.33 chs. by 2 sets of chainmen is nothing; the mean is 14.33 65.67 —
5750 ft. 80.00 This being the point 20 miles E. of the SW. cor. of the State of Colorado, I set astronomical Monument No. 1, on 37th parallel.
A sand stone 12x12 ins. by 6 ft. long 3 ft in the ground.
This monument is dressed 10 ins. down from the top on all 4 sides, said sides facing the cardinal points, and marked with letters 2 ins. square graven in the stone, on the N. Colo.; on the E. 37° N. L.; on the S. N. Mex.; on the W. 20M; 1902. Dug pits 36x36x18 ins. N. S. and W. of the monument 6 ft. dist.

Found it impracticable to dig E. pit owing to its place being covered by a large cedar stump. Raised a mound of earth and stone 5 ft. base 2 ft. high around the monument. The W. Pinnacle of Ship Rock bears S. 22° 06′ W.

A cedar tree 10 ins. dia. bears N. 8° E. 89 lks. dist. Mkd. Colo., 20 M., B. T.
A cedar tree 8 ins. dia. bears S. 44° E., 50 lks. dist., marked N. M., 20 M., B. T.
A cedar tree 8 ins. dia. bears N. 68° 40′ W. 101 lks. dist. Mkd. Colo.; 20M.; B. T.
No tree suitable for bearing tree within limits in SW. quadrant
Land, rough and broken.
Soil, rocky and sandy, 4th rate.
Vegetation, scrub greasewood, in valley, and scrub cedar and pinon timber on mesa.
Alt. 5750 ft.
Temp. 64°. Oct. 13th, 1902.

At the 20th mile cor., Oct. 14th, 1902, at 5h 58m P. M. i.m.t. after carefully adjusting the transit, I observe Polaris at eastern elongation and mark a point in this line on a plug driven in the ground N. of my station. Oct. 14th, 1902.

Oct. 15th, 1902, I lay off the azimuth of Polaris 1° 31′ to the W. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station.
The magnetic bearing of the meridian is N. 13° 50′ W. This gives the magnetic declination 13° 50′ E.

I now lay off an angle of 90° from the N. to the east for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of 4 sights was used with the instrument reversed at each sight.

21st mile

East on the tangent to the parallel.
Over broken rocky ground and through scrub timber.

30.00 Top of ridge bears NW. and SE. about 50 ft. above last cor. Descend.

50.00 Leave timber bears NW. and SE.
Difference between measurements of 76.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 76.02 chs.
By 2nd set 75.98 chs.; the mean of which is

5700 ft. 76.00 N. .73 of a link from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 4 ins. in the ground to bed rock for 21st mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 20.95 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impractical.
Alt. 5700 ft.
Temp. 80°.
This corner was placed at this point because the point at 80 chs. falls in the canon.

72.21 Stadia point on bluff W. of cor.
Stadia measurement,
Angle 5° —; Rod 6.60 ft. double = 1320 ft.
Constant .9924×1320 ft.=1309.97 ft.+C.=1.14=1311.11 ft.
1311.11 ft.=19.86 cha.+72.21 chs.=92.07 chs.+80 chs.=12.07 chs.

80.00 Comes on steep slope of canon wall, impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon timber.

22nd mile

S. 89° 59' E. on the tangent to the parallel.

Descend over rough broken country.

6.00 Bottom of rock canon 200 ft. deep, heads about 10 chs. NW.

Course SE. about 1/4 mile SE. canon joins larger one from NE. to SW.

12.07 Stadia point on rocky spur, slope S. 125 ft. high.

Stadia measurement,

Angle 3 + : Rod 11.55 ft. double, = 2310 ft. 2310 ft. × .9973 = 2303.76 ft. + C. = 1.15 ft. = 2304.91 ft. = 34.92 chs. + 12.07 chs. = 46.99 chs.

5500 ft. 22.00 Bottom of main canon, course SW.

46.99 Stadia point.

Stadia measurement,

Angle 3 + : Rod 9.69 ft. single = 969 × .9973 = 966.38 ft. + C. = 1.15 ft. = 967.53 ft. = 14.66 chs. + 46.99 chs.

55 61.65 Stadia point.

Stadia measurement,

Angle 3 + : Rod 9.66 ft. single = 966 ft. × .9973 = 963.30 + C. 1.15 = 964.45 ft. = 14.61 chs. = 61.65 chs.

76.26 Stadia point on point of rocks S. walf of canon.

Tape measurement, 3.74 chs. + 76.26 chs.

5750 ft. 80.00 N. 3 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 22nd mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 22M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

This cor. stands in brush at foot of rocky bluff on S. side of canon.

Land, rough and broken.

Soil, rocky and sandy, 3rd rate.

Vegetation, grass, sage and willow brush, scattering scrub cedar and pinon.

Alt. 5750 ft.
Temp. 75°.

23rd mile

S. 89° 59' E. on the tangent to the parallel. Following up general course of rough canon.

5600 ft. 9.50 Bottom of canon, dry, course NW.; ascend.

5700 ft. 15.39 Point of rocks slope S.
Stadia measurement,
Angle 3° +; Rod 11.80 ft. double=2360 ft.
×.9973 = 2353.63+C. = 1.15 = 2354.78 ft.=
35.67 chs. + 15.39 chs. = 51.06 chs.

5600 ft. 39.00 Bottom of rocky canon comes in from NE. joins main canon about 2 chs. S. of the line; ascend cliffs.

5800 ft. 51.06 Stadia point on top of wall of canon, altitude 5800 ft., bears NE. and SE. Enter timber, thence over high table land or mesa.

74.00 Leave timber bears N. and S.
Difference between measurements of 44.33 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 44.34 chs.
By 2nd set 44.32 chs.; the mean of which is 44.33 chs. + 35.67 chs. =

5900 ft. 80.00 N. 7 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 23rd mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 23 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Land, rough and broken.
Soil, sandy and rocky, 4th rate.
Vegetation, grass, sage and willow brush, and scrub cedar and pinon.
Alt. 5900 ft.
Temp. 56°.

—24th mile—

S. 89° 58′ E. on the tangent to the parallel. Ascend over rolling rocky land.

5900 ft. 70.26 Foot of bluffs bears NW. and SE.; ascend. Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

5970 ft. 80.00 N. 12 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 24th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 24M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

Land, rolling.

Soil, rocky and sandy, 3rd rate.

Vegetation, grass, sage and cactus, scattering timber south of the line.

Alt. 5970 ft.

Temp. 50°. Oct. 15th, 1902.

I examine the transit and find it in adjustment, I compare the steel tapes with the standard and find them of correct length.

—25th mile—

S. 89° 57′ E. on the tangent to the parallel. Ascend rocky slope.

13.03 Stadia point, thence by Stadia measurement.

Angle 17′ + ; Rod 10.44 ft. double—2088 ft. × .9145—1909.48 ft. 1909.48 ft. + C.—1.10—1910.58 ft.—28.95 chs. = 13.03 chs.—

41.98 On top of cliffs W. edge of high mesa bears NW. and SE. about 800 ft. high, enter scrub cedar and pinon, thence over rocky mesa.

Difference between measurements of 51.05 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 51.07 chs.
By 2nd set 51.03 chs.; the mean of which is 51.05 chs.=28.95 chs.=

6800 ft. 80.00 N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 3 ins. in the ground to bed rock for the 25th mile cor. A brass cap on the top of the pipe has raised letters Colo on N., and N.M. on S. and 25M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
A pinon tree 10 ins. dia. bears S. 52° 50′ W. 86 lks. dist. Mkd. N.M., 25M., B.T. No other trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, rocky and sandy, 4th rate.
Vegetation, some grass and sage on slope and scrub cedar and pinon on mesa.
Alt. 6800 ft.
Temp. 75 . Oct. 16th, 1902.

I examine the transit and compare the tapes with the standard, find all correct this morning.

—26th mile—

S. 89° 57′ E. on the tangent to the parallel.
6.00 Bottom of dry rocky gulch, course NE.
12.08 On sharp rocky spur slope N.
40.00 Bottom of dry ravine about 400 ft deep, course NE. about 5 miles to Mancos Canon.
6800 ft. 61.00 Sharp narrow rocky spur, slope N.
71.75 Stadia point on high rocky spur, slope NE.
Stadia measurement.
Angle 6′ —; Rod 13.00 ft. double=2600 ft.×
9891=2571.66 ft.+C. = 1.14 ft.=2572.80 ft.
=38.98 chs.+71.75 chs.=110.73 chs.=110.73 chs.—80.00 chs.=30.73 chs. on 27th mile.
As I find the point at 80.00 chs. will come in canon and is inaccessible therefore at

6850 ft. 73.00 N 24½ lks from the tangent,-
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bare rock for 26th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 25½ M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
This cor. stands on top of perpendicular wall.
Alt. 6850 ft.
Temp. 70°.

80.00 In canon, inaccessible.
Land, high mesa cut by canons.
Soil, rocky and sandy, 4th rate.
Timber, scrub cedar and pinon.

27th mile

S. 89° 56' E. on the tangent to the parallel.

15.00 Bottom of rocky chasm, about 500 ft deep, course NE.

30.73 Stadia point on long narrow ridge bears N. and S. about 300 ft. above bottom of canon.

60.00 Bottom of dry canon about 350 ft deep, course NE.; ascend.

Difference between measurements of 49.27 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 49.29 chs.
By 2nd set 49.25 chs.; the mean of which is 49.27 chs.
49.27 chs. +30.73 chs.

80.00 Comes on steep wall of canon, impracticable to establish the corner.
Land, very rough and broken.
Soil, rocky and sandy, 3 rd rate.
Timber, scrub cedar and pinon.

28th mile

S. 89° 55' E. on the tangent to the parallel.
Ascend rocky canon wall.

6700 ft.	1.20	N. 37 lks. from the tangent. Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom on bare bed rock for 27th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 27.015 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable. This cor stands on top of wall of canon bears S. and NE.
		No trees within limits suitable for bearing trees.
		Alt. 6700 ft.
		Temp. 70°.
		Descend through scattering scrub cedars.
	30.00	Dry gulch, course NE.
	40.50	Top of ridge bears N. and S.; descend.
		Difference between measurements of 62.30 chs. by 2 sets of chainmen is 6 lks. position of middle point
		By 1st set 62.33 chs.
		By 2nd set 62.27 chs.; the mean of which is
6700 ft.	62.30	Stadia point on brink of ravine bears N. and S.
		Stadia measurement,
		Angle 2°—; Rod 10.43 double=2086 ft. 9988=2083.50 ft.+C.=1.15 ft.=2084.65 ft.= 31.58 chs.+62.30 chs.=93.88 chs.—80 chs.= 13.88 chs. on the 29th mile.
	80.00	Comes in bottom of dry rocky canon about 200 ft. deep, course NW. Impracticable to establish the cor.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Timber, scrub cedar and pinon.
		Oct. 17th. 1902.

I test the levels and collimation of transit, and compare the tapes with the standard; find all correct.

29th mile

S. 89° 55' E. on the tangent to the parallel.

13.88 Stadia point, tape measurement.

6500 ft. 14.00 N. 51 lks from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bare bed rock for 28th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 28.175 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

Timber too scrubby for bearing trees.

Alt. 6500 ft.

Temp. 70°.

30.00 Top of ridge bears NW. and SE.

53.00 Bottom of dry ravine, course NW.

Difference between measurements of 66.00 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 66.01 chs.

By 2nd set 65.99 chs ; the mean of which is 66.00 chs. + 14.00 chs.

6500 ft. 80.00 N. 62 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 29th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 29 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post. No trees within limits suitable for bearing trees.

Land, rough and broken.

Soil, rocky and sandy, 3rd rate.

Timber ,scrub cedar and pinon.

Alt. 6500 ft.

Temp. 75°.

30th mile

S. 89° 54' E. on the tangent to the parallel.

17.00 Top of ridge bears N. and S.; descend.

6300 ft. 59.00 On top of canon wall bears NW. and SE.

canon about 400 ft deep and too wide to use stadia. Therefore set a flag across canon on tangent. Ran base line S. 0° 06' W. at right angles to tangent 20.00 chs. from S. end of base line flag on tangent line across canon bears N. 69° 27' E.
Angle from base line 69° 20'.
Tan. 69° 20' × base 20 chs. = 53.02 chs. = distance across canon.
53.02 chs. + 59.60 chs. = 112.62 chs. − 80.00 chs. = 32.62 chs. on 31st mile.

80.00 Falls in bottom of rough rocky canon about 400 ft. deep.
Main canon comes from NW., short branch comes from N. Course S. about ½ mile to Salt Canon. Impracticable to establish the corner.
Land, rough and rocky.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass sage, scrub cedar and pinon timber.

October 18th, 1902.

31st mile.

S. 89° 53' E. on the tangent to the parallel.
6200 ft 32.62 Point at E. end of triangulation.
N. 82 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock for 30th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on the S. and 30.408 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post.
Pits impracticable.
Ute Peak bears N. 38° 20' W.
Ship Rock bears S. 41° 40' W.
No trees within limits suitable for bearing trees.
This cor. stands on wall of canon bears N. and S.

Alt. 6200 ft
Temp. 64°

6200 ft 49.50 On W. wall of canon, bears N. and S
Descend over rocks.

5900 ft. 77.00 Dry bed of stream 10 lks. wide in bottom of canon, course S.

77.50 Trail, bears NE. and SW

Difference between measurements of 47.38 chs. by 2 sets of chainmen [illegible] 8 lks. position of middle point

By 1st set 47.42 chs.
By 2nd set 47.34 chs., the mean of which is 47.38 chs.
47.38 chs. = 32.62 chs.

5900 ft 80.00 N. 92 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 31st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 31 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
This cor. stands in N. branch of Salt Canon, course SW. about ½ mile to main canon.
No trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, sand and clay, very rocky, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon.
Alt. 5900 ft.
Temp. 80°

32nd mile.

S. 89 53' E. on the tangent to the parallel.
Ascend steep rocky canon wall.

23.32 On top of canon wall about 300 ft. above corner, bears NE. and SW.

32.00 Dry ravine, course NW.

60.00 Dry ravine, course N. W.

Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.
By 2nd set 79.94 chs., the mean of which is
6150 ft. 80.00 N. 110 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 32nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 32 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
No trees within limits suitable for bearing trees.
Land, rough and broken, very rocky.
Soil, sand and clay, 4th rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6150 ft
Temp. 70

Oct. 19th, 1902.

I examine the levels and line of collimation of transit, and compare the steel tapes with the standard and find everything in adjustment.

33rd mile

S. 89° 52' E. on the tangent to the parallel.
30.00 Head of canon, course SE.
73.00 Leave timber bears NE. and SW.
Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point.
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is
6150 ft. 80.00 N. 129 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 33rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 33 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft base

2 ft. high around the post.
No trees within limits.
Land, rolling.
Soil, sand and clay, 4th rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6150 ft.
Temp. 80°.

34th mile.

S. 89° 52′ E. on the tangent to the parallel.
Over gently rolling land.

6.00 Enter scrub cedar and pinon, timber, bears N. and S.

72.30 Top of ridge, bears N. and S.; descend.

78.00 Dry gulch, course SE.; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 80.01 chs.

By 2nd set 79.99 chs.; the mean of which is

6210 ft. 80.00 N. 150 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 1 ft. in the ground to bed rock for 34th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 34 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

A pinon tree 6 ins. dia. bears N. 2° 10′ E. 50 lks. dist, mkd. Colo. 34 M., B. T.

A pinon tree 6 ins. dia. bears S. 24½° W., 63 lks. dist., marked N.M., 34 M., B. T.

No other trees within limits suitable for bearing trees.

Land, rolling.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage, scrub cedar and pinon.

Alt. 6210 ft.

Temp. 76°. Oct. 20th, 1902.

35th mile

I examine the transit and compare the steel tapes with the standard, find all correct.
S. 89° 51′ E. on the tangent to the parallel.

14.20 Trail bears N. and S.

17.52 Top of spur slope S.

Stadia measurement.

Angle 0′; Rod 11.17 double=2234 ft.+C.=1.15 ft.=2235.15 ft.=33.86 chs.+17.52 chs.=51.38 chs.

6200 ft. 21.00 On W. wall of canon bears S. and N.

40.00 Bottom of canon about 350 ft. deep, dry, course S. There is a water pocket about 3/4 of a mile N. in this canon.

6200 ft. 51.38 On E. wall of canon bears N. and S., thence by tape measurement.

Difference between measurements of 46.14 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 46.16 chs.

By 2nd set 46.12 chs.; the mean of which is 46.14 chs.+38.86 chs.=

6200 ft. 80.00 N. 172 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 35th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 35 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 8 ins. dia. bears N. 15° 20′ E. 36 lks. dist. marked Colo. 35M., B. T.

A pinon tree 8 ins. dia. bears S. 58° 10′ W. 88 lks. dist. marked N.M., 35M., B. T.

No other trees within limits suitable for bearing trees.

Land, rolling and broken.

Soil, sand and clay, 3 rd rate.

Vegetation, grass, sage and cactus, scrub cedar and pinon.

Alt. 6200 ft.

Temp. 80°.

36th mile

S. 89° 50' E. on the tangent to the parallel. Over mesa and through scrub timber.

75.00 Dry gulch; course NW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 80.01 chs.

By 2nd set 79.99 chs.; the mean of which is

6400 ft. 80.00 N. 196 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 36th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 36M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 10 ins. dia. bears N. 60° 10' W. 44 lks. dist. marked Colo. 36M., B. T.

A pinon tree 12 ins. dia. bears S. 21° S. 76 lks. dist. marked N.M., 36M., B. T.

No other trees within limits suitable for bearing trees.

Land, nearly level.

Soil, sand and clay, 3rd rate.

Vegetation, grass, cactus, scrub cedar and pinon.

Alt. 6400 ft.

Temp. 82°.

37th mile

S. 89° 50' E. on the tangent to the parallel. Over nearly level mesa, through scrub timber.

Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is

6530 ft. 80.00 N. 221 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 1 ft. in the ground to bed rock for 37th mile cor. A brass cap on the top of the pipe has raised letters Colo.

on N., N.M. on S. and 37 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

A pinon tree 10 ins. dia. bears N. 62½° E. 26 lks. dist. marked Colo. 37 M., B. T.

A pinon tree 14 ins. dia. bears S. 24° E. 49 lks. dist. marked N. M., 37 M., B. T.

A pinon 7 ins. dia. bears N. 46° 50' W. 25 lks. dist. marked Colo., 37 M., B. T.

No trees within limits SW. suitable for bearing trees.

Land, nearly level mesa.

Soil, sand and clay, 3rd rate.

Vegetation, scrub cedar and pinon.

Alt. 6530 ft.

Temp. 70°.

Oct. 21st, 1902.

I examine the transit and compare the steel tapes with the standard, find all correct.

38th mile—

S. 89° 49' E. on the tangent to the parallel.

17.00 Dry gulch, course NW.

6530 ft. 30.90 Top of ridge bears NW. and SE.

6500 ft. 41.00 On W. wall of canon, bears NW. and SE.; descend.

6100 ft. 60.00 Bottom of canon, dry, bed of stream 10 lks. wide, course SE.

The W. branch of Barker Arroyo about 400 ft. below top of wall.

63.00 Trail bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks. position of middle point

By 1st set 80.07 chs.

By 2nd set 79.93 chs.; the mean of which is

6100 ft. 80.00 N. 247 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 38t. mile cor. A brass cap on the top of

the pipe has raised letters Colo. on N., N.M. on S. and 38 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on W. side of low spur that slopes S.

No trees suitable for bearing trees within limits.

Land, rough and broken.

Soil, sand clay, 3rd rate.

Vegetation, grass, sage and cactus, scrub cedar and pinon timber.

Alt. 6100 ft.

Temp. 70°.

At the 38th mile cor. at 5h 26m P.M. 1m.t., I observe Polaris at eastern elongation. Though still daylight the star is plainly visible through the transit telescope. I mark a point in this line on a plug driven in the ground N. of my station.

October 22nd, 1902.

October 23rd, at 7h 30m A.M. I lay off the azimuth of Polaris 1° 31.1′ to the W. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 50′ W., which gives magnetic variation 13° 50′ E. I now lay off 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used, the instrument being in perfect adjustment, and the telescope reversed at each sight.

I compare the steel tapes with the standard and find them of correct length.

39th mile.

East on the tangent to the parallel.

Ascend over S. slope.

6150 ft. 6.00 Top of spur slope S.
Stadia measurement,
Angle 8 +; Rod 12.70 double=2540 ft.×.9806=2490.72 ft.
2490.72 ft.+C. 1.14 ft.=2491.86 ft.=37.75 chs.+6.00 chs.=43.75 chs.

6100 ft. 20.00 Bottom of dry canon, course S.; ascend.

43.75 Stadia point, thence by tape measurement,

6500 ft. 46.00 On top of wall of canon, about 400 ft. above bottom, bears SW. and NE.
Stadia measurement,
Angle 0°, Rod 10.20 double=2040 ft.+C.=1.15 ft.=2041.15 ft.
2041.15 ft.=30.92 chs.+46.00=76.92 chs.

6400 ft. 52.00 Dry ravine, course SE.; ascend.

76.92 On rocky south slope, stadia point.
Stadia measurement,
Angle 5° +, Rod 10.40 ft. single=1040×9924=1032.09+C.=1.14 ft.=1033.23 ft.=15.65 chs.+76.92 chs.=92.57 chs.—80 chs.=12.57 chs. on 40th mile.

80.00 Falls on rocky S. slope; impracticable to establish cor. here.
Land, very rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon.

40th mile

S. 89° 59′ E. on the tangent to the parallel.

12.57 On wall of canon, bears NW. and SE.

6675 ft. 13.37 N. 1 lk. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 10 ins. in the ground to bed rock for 39th mile. cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 39.167 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

No trees within limits suitable for bearing trees.
Alt. 6675 ft.
Temp. 80

24.65 Brow of cliffs, bears NE. and SE.; descend.

36.00 Dry rocky ravine, 300 ft. deep, course S.; ascend along rocky south slope.
Difference between measurements of 66.63 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 66.68 chs.
By 2nd set 66.58 chs.; the mean of which is 66.63 chs.
66.63 chs. + 13.37 chs.

6575 ft. 80.00 N. 3 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 40th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 40 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on rocky spur sloping S. No trees within limits large enough for bearing trees.
Land, very rocky, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, grass sage and cactus, scrub cedar and pinon.
Alt. 6575 ft.
Temp. 70°.

41st mile

S. 89° 59' E. on the tangent to the parallel.
Ascend.

2.60 Top of spur slope S.
Stadia measurement,
Angle 9° +, Rod 10.62 double = 2124 ft. × 9755 = 2071.96 ft. + C. = 1.13 ft. = 2075.09 ft. = 31.42 chs. + 2.60 chs. = 34.02 chs.

15.00 Bottom of dry canon, course SW., 100 ft. deep.

34.02 On wall of canon, bears NE. and SW., about 200 ft. above bottom.
Ascend by tape measurement.
Difference between measurements of 48.58 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 48.60 chs.
By 2nd set 48.56 chs.; the mean of which is 48.58 chs.
48.58 chs. - 31.42 chs.

6875 ft. 80.00 N. 7 lks. from the tangent
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 41st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 41 M. stamped in the center. R. iset a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 6 ins. dia. bears N. 86° 20' E. 62 lks. dist. marked Colo., 41M., B. T.
A pinon tree 10 ins. dia. bears S. 17° 20' W. 84 lks. dist. marked N.M., 41 M., B.T.
No other trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon.
Alt. 6875 ft.
Temp. 58°

October 23rd, 1902.

42nd mile

S. 89° 58' E. on the tangent to the parallel
.40 Dry gulch coarse N., ascend.
15.42 Top of ridge bears N. and S.; descend.
75.00 Top of spur slope south.
Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks., position of middle point.
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is

7000 ft. 80.00 N. 12 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 42nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 42 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 6 ins. dia. bears N. 16° 40' E. 66 lks. dist. marked Colo., 42 M., B. T.
A pinon tree 8 ins. dia., bears S. 37° 40' W. 47 lks. dist. marked N.M., 42 M., B. T.
No other trees within limits suitable for bearing trees.
Land, rough and rocky.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 7000 ft.
Temp. 70°.

43rd mile

S. 89° 57' E. on the tangent to the parallel.
Ascend.
7.32 Top of spur slope E.
Stadia measurement,
Angle 0°, Rod 12.84 double = 2568 ft. + C. 1.15 ft. = 2569.15 ft. = 38.92 chs. + 7.32 chs. = 46.24 chs.
33.00 Bottom of canon about 300 ft. deep, dry, course SW.
46.24 Stadia point, thence by tape measurement.
7000 ft. 49.00 Top of ridge bears NW. and SE.; altitude 7000 ft.
51.58 Point of spur slope E.; descend.
76.80 Bottom of dry ravine, course SE. about 100 ft. deep.
Difference between measurements of 41.08 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 41.09 chs.
By 2nd set 41.07 chs.; the mean of which is

41.08 chs. = 38.92 chs.

80.00 Falls on steep side of rocky gulch, impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon.

October 25th, 1902

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

44th mile

S. 89° 57' E. on the tangent to the parallel.

6725 ft. 4.00 Top of spur slope SE.
N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 43rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 43.05 M. stamped in the center. Raised a mound of earth 3 ft. base 2 ft. high around the post. Pits impracticable.
A cedar tree 12 ins. dia. bears N. 29° E. 29 lks. dist. marked Colo. 43.05 M. B. T.
A pinon tree 7 ins. dia. bears S. 68° E. 55 lks. dist. marked N.M., 43.05 M., B. T.
A cedar tree 12 ins. dia. bears S. 15° 15' W. 97 lks. dist. marked N.M., 43.05 M., B. T.
A cedar tree 12 ins. dia. bears N. 78° 10' W. 78 lks. dist. marked Colo., 43.05 M., B. T.
Alt. 6725 ft.
Temp. 65°.

8.00 Dry ravine, course SE., about 100 ft. deep; ascend.

12.30 Top of spur, 100 ft. high, slope SE.; descend.

18.00 Dry ravine Course SE., about 100 ft. deep, ascend.

24.50 Top of spur slope SE.; ascend.

40.00 Dry ravine course SE.; ascend.

48.00 Top of spur slope nearly E.; descend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 80.04 chs.
By 2nd set 79.96 chs.: the mean of which is
6650 ft. 80.00 N. 27 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 44th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 44 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 5 ins. dia. bears N. 44° 45′ E. 35 lks. dist. marked Colo., 44 M., B. T.
A pinon tree 12 ins. dia. bears S. 49° W. 116 lks. dist. marked N.M., 44 M., B. T.
No other trees within limits suitable for bearing trees.
Land, rolling and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6650 ft.
Temp. 70°.

45th mile

S. 89° 56′ E. on the tangent to the parallel.
Descend.
Stadia measurement,
Angle 3° —, Rod 9.61 double=1922 ft. × .9973=1916.81 ft. + C. =1.15 ft.=1917.96 ft. =29.06 chs.
20.00 Bottom of box canon, about 200 ft. deep, course SE.; ascend.
29.06 Stadia point, thence by tape measurement.
33.38 On spur slope SE. about 100 ft. above bottom of canon.
Stadia measurement,
Angle 3° —, Rod 11.82 single=1182 ft. × .9975 =1178.81 ft. + C. = 1.15 ft.=1179.96=17.88 chs. + 33.38 chs.=51.26 chs.
47.00 Bottom of rocky gulch, course SE.; ascend.

51.26 Stadia point, thence by tape measurement.
70.00 Top of spur, slope SE.
74.00 Dry gulch, course SE.
Difference between measurements of 33.06 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 33.08 chs.
By 2nd set 33.04 chs.; the mean of which is is 33.06 chs. + 46.94 chs. =
6200 ft. 80.00 N. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock for 45th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S., and 45 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post.
Pits impracticable.
A pinon tree 7 ins. dia. bears N. 37° 40' E. 75 lks. dist. marked Colo., 45 M., B.T.
A pinon tree 12 ins. dia. bears S. 25° 10' E. 90 lks. dist. marked N.M., 45 M., B.T.
A pinon tree 8 ins. dia. bears S. 35° 20' W. 77 lks. dist. marked N.M., 45 M., B.T.
A pinon tree 6 ins. dia. bears N. 25½° W. 110 lks. dist. marked Colo., 45 M., B.T.
Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6200 ft.
Temp. 70°

October 26th, 1902

I examine the levels and collimation of transit and compare the steel tapes with the standard, find all in adjustment.

46th mile.

S. 89° 55' E. on the tangent to the parallel.
Descend through scrub-timber.
16.75 Wood road bears NW. and SE.
74.00 Wood road on spur bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is

5910 ft. 80.00 N. 49 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 46th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 46 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 10 ins. dia. bears N. 14° 45′ W. 53 lks. dist. marked Colo., 46 M. B.T.
A cedar tree 7 ins. dia., bears S. 11° 45′ E. 90 lks. dist. marked N.M., 46 M., B.T.
No other trees within limits suitable for bearing trees.
This cor. stands on edge of dry gulch, course nearly E.
Land, rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 5910 ft.
Temp. 70°.

47th mile.

S. 89° 55′ E. on the tangent to the parallel. Descend along dry gulch, leave timber, bears NE. and SE.

25.80 Dry gulch, course SE.
31.00 Foot of hill bears N. and SE.; ascend.
54.00 Brow of bluff bears N. and S. 50 ft above last cor.; descend.
64.70 Wagon trail bears NE. and SW.; foot of bluff about 100 ft high, enter La Plata Valley, bears NE. and SW.
68.95 Wire fence bears N. and S.; enter Dale's field.
69.85 Irrigating ditch, course SW.
Difference between measurements of 80

chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is
5850 ft. 80.00 This point comes in middle of cultivated field, liable to be destroyed, therefore I set corner by public road on next mile.
Land, rolling.
Soil, sandy, 2nd and 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon.

48th mile

S. 89° 54′ E. on the tangent to the parallel. Across cultivated field.
16.90 W. edge of dry bed of La Plata, 75 lks. wide, course S.
18.00 Leave cultivated ground and enter dense willow and sage brush, bears N. and S.
22.42 Wire fence bears N. and S.; leave field.
28.60 Road bears N. and S. from Hesperus to Fruitland.
Difference between measurements of 30 chs. by 2 sets of chainmen is nothing, the mean is
5850 ft. 30.00 N. 67 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 47th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 47.375 M. stamped in the center. Dig pits 36x36x18 ins. N., S., E., and W. of cor. 6 ft. dist. Raised a mound of earth and stone 5 ft. base 2 ft. high around the post.
An oak tree 8 ins. dia. bears S. 80° 09′ E. 226 lks. dist. marked N.M., 47.375 M., B.T. No other bearing trees. The W. gable of Dale's new house bears N. 7° 48′ E. about 20 chs. dist.
The N. gable of Date's old house bears S 14° W. about 15 chs. dist.

A granite stone by the roadside bears S. 1° W. 5.80 chs. dist. This stone which is 10x4x10 ins. above ground is on the old Darling line and is marked Colo., 1868 on N. and N. Mex on S. I destroy this cor and retrace the Darling line W. At 59.60 chs. I find an old pine post marked Colo., on N., 284 on E., N. Mex. on S. and 1868 on W. I destroy the post, ran W. retracing Darling's 285th mile. At 80.10 chs. I find a stake in ground and nearby a tree marked in pencil "Near Darling's 285th mile cor." I find no old Darling marks. Ran W. retracing Darling's 286th mile. At 79.40 chs. find a pile of stone, but no marks of any kind. Ran W. retracing Darling's 287th mile. At 80.00 chs. failed to find any trace of Darling's 287th mile cor. and failed to find any of Darling's corners W. of this point, except the stone mentioned in these notes on my 6th mile and Darling's 10th astronomical station nearly S. of our 17th mile.

48th mile continued

I now return to point on tangent and run S. 89° 54′ E. on the tangent to the parallel on 48th mile.

34.00 Irrigation ditch, course SW. leave La Plata Valley bears NE. and SW.

42.00 On top of bluff about 50 ft high, bears NE. and SW.

48.60 Darling's 283rd mile cor. bears S. 5.90 chs. A sandstone 8x4x10 ins. above ground marked C. on N., 283 on E., N.M. on S. and 1868 on W.
I destroyed this cor.

50.00 Top of ridge, 50 ft high, bears NE. and SW.; descend.

63.00 Dry gulch, course S.

68.70 Dry gulch, course SW.

Difference between measurements of 50

chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 50.02 chs.
By 2nd set 49.98 chs.; the mean of which is 50.00 chs. +30.00 chs.

5875 ft. 80.00 N. 92 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 48th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 48 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft dist., raised a mound of earth 5 ft. base 2 ft. high around the post.
A cedar tree 8 ins. dia. bears S. 18° E. 98 lks. dist. marked N.M., 48 M., B.T.
A cedar tree 10 ins. dia. bears S. 44½° W. 124 lks. dist. marked N.M., 48 M., B.T.
No trees on other side of line within limits.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage. Willow brush along the La Plata.
Alt. 5875 ft.
Temp. 62°.

At the 48th mile cor.; at 5h 07m P. M. 1m.t., Oct. 27th, 1902 after carefully adjusting transit, though still daylight, I observe Polaris at eastern elongation. The star is plainly visible through the transit telescope. I mark a point in this line on a plug driven in the ground N. of my station.

October 27th, 1902.

Oct. 28th, 1902, at 7h A. M. I lay off the azimuth of Polaris 1° 31.1' to the W. and mark a point in the true meridian on a plug driven in the ground N. of my station. The magnetic bearing on the meridian is N. 12° 55' W., this gives the magnetic declination 13° 55' E.

I now lay off from the N. to the E. for the

tangent to the parallel, an angle of 90° from the meridian. In all these observations and the subsequent turning of angles the mean of 4 sights was used with the telescope reversed at each sight.

—49th mile—

East on the tangent to the parallel.
Ascend along NW. slope.

16.00 Enter scattering scrub timber bears NE. and SW.

49.00 Darfing's 282nd mile cor. bears S. 6.65 chs. dist., a sandstone 14x4x12 ins. above ground in a stone mound. One cedar bearing tree SW.; I destroyed this corner.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is

6000 ft. 80.00 N. .76 of a link from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 49th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 49 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post. No trees within limits suitable for bearing trees.

Land, rolling.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage scrub cedar and pinon.

Alt. 6000 ft.

Temp 70°.

—50th mile—

S. 89° 59' E. on the tangent to the parallel.
Along gentle N. slope, over rolling lands, through scattering timber.

10.00 Top of spur slope N.; descend.

	49.10	Darling's 281st mile cor., bears S. 5.67 chs. dist. A sandstone 18x4x12 ins. above ground marked N.M. on S. and 1868, on W. I destroyed this corner.
	60.00	Dry gulch, course SE.
	65.00	Dry gulch, course S.; ascend.
6000 ft.	77.00	Foot of rock cliffs, bears NE. and SW.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
	80.00	Comes on steep side of cliffs impracticable to establish the cor. at this point.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage, scattering scrub cedar and pinon.

—51st mile—

S. 89° 59' E on the tangent to the parallel. Ascend cliffs.

6275 ft.	4.00	N. 3 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 6 ins. in the ground to bed rock for the 50th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 50.05 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		Alt. 6275 ft.
		Temp. 80°.
6275 ft.	10.00	Top of spur slope S.; descend.
	45.00	Coal cropping about 30 ft thick about 3 chs. S. of the line
[illegible] ft.	47.00	Dry gulch, course SW.; ascend cliffs.
	49.00	After a careful search 6 chs. S. of line I failed to find Darling's 280th mile corner.
6100 ft.	59.00	Top of high rocky ridge. 200 ft. above gulch, bears NE. and SW.; descend.
		Difference between measurements of 76

chs. by 2 sets of chainmen is 10 lks. position of middle point.
By 1st set 76.05 chs.
By 2nd set 75.95 chs.; the mean of which is 76.00 chs.
76.00 chs. + 4.00 chs.

6000 ft. 80.00 N 7 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 51st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 51 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
A pinon tree 10 ins. dia. bears E. 38° E. 81 lks. dist. marked N.M., 51 M., B.T.
A cedar tree 10 ins. dia. bears N. 48° W. 85 lks. dist. marked Colo., 51 M. B.T. No other trees within limits suitable for bearing trees.
This cor. stands on brink of canon that bears N. and S.
Land, rolling and broken.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6000 ft.
Temp. 60°.

—52nd mile—

S. 89° 58' E. on the tangent to the parallel.
Descend.
Stadia measurement.
Angle 6°—. Rod 7.15 double = 1430 × .9891 = 1414.41 ft. + C. = 1.14 ft. = 1415.55 ft. = 21.45 chs.

6.00 Bottom of canon about 150 ft. deep, course S.; ascend.

21.45 Stadia point on spur, slope S.
Thence by tape measurement.

46.60 Darling's 279th mile cor. bears S. 5.72 chs. dist. A sandstone 8x10x6 ins. above ground marked C. on N., N.M. on S., 279 on E. Two

cedar bearing trees on S. side of line. I destroyed this cor.

5800 ft. 47.00 Dry bed of McDermott's Creek, course SW.; about 20 chs. down bed of creek a soda spring.

Difference between measurements of 58.55 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 58.56 chs.

By 2nd set 58.54 chs.; the mean of which is 58.55 chs. +21.45 chs.

5975 ft. 80.00 N. 12 lks from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 52nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 52 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on side of hill sloping NW.

A pinon tree 10 ins. dia. bears S. 45° 20′ E. 87 lks. dist. marked N.M., 52 M., B.T.

A pinon tree 7 ins. dia. bears S. 21° 40′ W. 58 lks. dist. marked N.M., 52 M., B.T.

A pinon tree 7 ins. dia. bears N. 43° W. 86 lks. dist. marked Colo., 52 M., B.T.

No tree within limits NE. suitable for bearing tree.

Land, rolling and broken.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage and scattering scrub cedar and pinon.

Alt. 5975 ft.

Temp. 50°. October 28th, 1902.

I examine the transit in all its parts and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

53rd mile

S. 89° 57′ E. on the tangent to the parallel.

Ascend.

10.00 Top of spur slope N.; descend.

15.00 Leave timber bears N. and S.

47.86 Darling's 278th mile cor. bears S. 6.08 chs. A cedar post marked C. on N., 278 on E., and N.M. on S. standing in line of wire fence. Pits E. and W. of post appear to have been excavated within the last 3 and 4 years. Post may not be in its original position. Post much decayed. Marks scarcely legible. I destroyed this cor.

50.75 Dry gulch, course N.

76.25 Road bears NE. and SW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

5950 ft. 80.00 N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 53rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 53 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Most eastern high peak of the La Plata Mts., bears N. 6° 40′ E. A conical peak covered with timber and capped with black lava rock just visible over low hills bears N. 45° 54′ W. about 2 miles dist.
A SW. salient of high mesa having profile of Indian features looking W., bears S. 22° 40′ E.
Land, gently rolling.
Soil, clay with some sand, 3rd rate.
Vegetation, sage, scattering scrub cedar and pinon.
Alt. 5950 ft.
Temp. 70°.

54th mile

S. 89° 57′ E. on the tangent to the parallel. Ascend over gently rolling ground.

13.00 Irrigation ditch, now dry, course SW. Enter scattering timber bears N. and S.

20.00 About 6 chs. S. to cor. of wire fence that runs W. and a little E. of S.

49.10 A post supposed to be Darling's 277th mile cor. bears S. 6 chs. dist, not marked. One bearing tree each side of an E. and W. line. I destroyed this cor. There are subdivision closing corners E. and W. of this point, and not far from it which I leave standing.

55.00 Leave timber, bears N. and S.

60.00 Dry gulch, course NW.

79.00 Enter timber bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

6210 ft. 80.00 N. 27 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 54th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 54 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.

A pinon tree 8 ins. dia. bears N. 57° 20′ W. 75 lks. dist. marked Colo., 54 M., B.T.

A pinon tree 6 ins. dia. bears S. 68½° E. 65 lks. dist. marked N.M., 54 M., B.T.

No other trees within limits suitable for bearing trees.

Conical peak covered with timber and capped with black lava rock bears N. 60° 40′ W. about 3 miles dist.

S. salient of high mesa profile of Indian face looking W. bears S. 4° 10′ E.

Land, rolling.

Soil, clay and sand, 3rd rate.
Vegetation, sage and scattering scrub cedar and pinon.
Alt. 6210 ft.
Temp. 65°.

55th mile

S. 89° 56' E. on the tangent to the parallel. Over gently rolling land.

18.00 Top of spur slope NW.

32.00 Leave timber bears NW. and SE.

48.00 Darling's 276th mile cor. a post marked C. on N., 276 on E. and N.M. on S. and 1868 on W. bears S. 6.45 chs. I destroyed this cor.

52.75 Dry gulch, course NW.

68.65 Wagon trail bears NE. and SW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is

6250 ft. 80.00 N. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 55th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 55 M., stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post. A cedar tree 12 ins. dia. bears N. 34° 50' E. 309 lks. dist. marked Colo., 55 M., B.T.
A pinon tree 12 ins. dia. bears S. 58° 40' W. 204 lks. dist. marked N.M., 55 M., B.T. No other trees within limits.
Land, rolling
Soil, sand and clay, 3rd rate.
Vegetation, sage and scrub cedar and pinon.
Alt. 6250 ft.
Temp. 68°.

56th mile

S. 89° 55′ E. on the tangent to the parallel. Over gently rolling land.

34.00 Enter timber bears N. and S.

6250 ft. 41.50 Foot of bad land hills bears NE. and SW.; ascend.

49.50 Darling's 275th mile cor. bears S. 6 chs. A cedar tree 12 ins. dia. marked Colo. on N., 275 on E., N.M. on S., 1868 on W. sides. I destroy these marks.

77.00 Top of rock bluff bears NW. and SE., about 100 ft. high.

Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.

By 2nd set 79.97 chs.; the mean of which is

6425 ft. 80.00 N. 49 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 56th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 56 M. stamped in the center. Raised mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A cedar tree 10 ins. dia. bears N. 63° 30′ E. 66 lks. dist. marked Colo., 56 M., B.T.

A pinon tree 10 ins. dia. bears S. 65° E. 57 lks. dist. marked N.M., 56 M., B.T.

No other trees within limits suitable for bearing trees.

Soil, sand and clay, 3rd rate.

Vegetation, sage, scrub cedar and pinon.

Land, rolling.

Alt. 6425 ft.

Temp. 60°. October 29th, 1902.

I examine the instrument, compare the steel tapes with the standard and find all correct.

57th mile

S. 89° 55′ E. on the tangent to the parallel.

Along S. rocky slope.

6425 ft. 10.00 Top of rock ledge bears SW. and NW.

12.00 Coyote Spring about 15 chs. S.

49.25 Darling's 274th mile cor. bears S. 6.08 chs. A post marked Colo. on N., 274 on E., N.M. on S. and 1868 on W. I destroyed this cor. Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

6325 ft. 80.00 N. 62 lks. from the tangent.

Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for 57th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 57 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.

A pinon tree 8 ins. dia. bears N. 54° 40' 55 lks. dist. marked Colo., 57 M., B.T.

A pinon tree 10 ins. dia. bears S. 17° 20' E. 60 lks. dist. marked N.M., 57 M., B.T.

A pinon tree 12 ins. dia. bears N. 12° W. 82 lks. dist. marked Colo., 57 M., B.T.

A pinon tree 6 ins. dia. bears S. 43° W. 22 lks. dist. marked N.M., 57 M., B.T.

Land, rolling and broken.

Soil, sand, clay and alkali, 3rd rate.

Vegetation, scrub cedar and pinon.

Alt. 6325 ft.

Temp. 62°.

58th mile

S. 89° 54' E. on the tangent to the parallel.

Ascend through timber.

9.80 On spur slope NW.

48.70 Darling's 273rd mile cor. bears S. 5.55 chs. A post 4 ins. square marked Colo. on N., 273 on E., N.M. on S. and no marks on the W. I destroyed this cor.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is
80.00 Comes on rough hillside, impracticable to establish cor at this point.
Land, mountainous.
Soil, sandy and rocky, 3rd rate.
Vegetation, sage, scrub cedar and pinon.

59th mile

S. 89° 53' E. on the tangent to the parallel.
Ascend.
6500 ft. 8.00 N. 78 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 58th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 58.1 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft base 2 ft. high around the post.
A pinon tree 10 ins. dia., bears N. 8° 40' E. 76 lks. dist. marked Colo., 58.1 M., B.T.
A cedar tree 8 ins. dia. bears 56½° E. 22 lks dist. marked N.M., 58.1 M., B.T.
A cedar tree 10 ins. dia. bears N. 65½° E. 20 lks. dist. marked Colo., 58.1 M., B.T.
No tree within limits SW. suitable for bearing tree.
Alt. 6500 ft.
Temp. 70°.
This cor. stands on sharp slope N.
49.00 Darling's 272nd mile cor. bears S. 5.25 chs.
A sandstone marked C. on N., 272 on E., N.M. on S. I destroy this cor. and marks on three bearing trees.
Difference between measurements of 72 chs. by 2 sets of chainmen is 2 lks. position of middle point.
By 1st set 72.01 chs.

By 2nd set 71.99 chs.; the mean of which is 72.00 chs. 8.00

6500 ft. 80.00 N. 92 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 59th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 59-M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. No trees within limits suitable for bearing trees.

Land, rolling and broken.

Soil, sand and clay, 3rd rate.

Vegetation, scrub cedar and pinon.

Alt. 6500 ft.

Temp. 62. October 30th, 1902.

I examine the transit and find it in perfect adjustment, compare the tapes and find them of correct length.

60th mile

S. 89° 53' E. on the tangent to the parallel.

29.00 Leave timber bears N. and S.

34.00 Dry gulch, course S. about 100 ft. below last cor.

49.76 Darling's 271st mile cor. bears S. 5 chs. A sandstone 8x12x16 ins. above ground marked 271 on E. Other marks defaced by time. I destroyed this cor.

57.00 Dry gulch, course SW.; ascend.

60.00 Cave Spring in Spencer Canon, about 60.00 chs. S.

65.00 Enter timber bears NW. and SE.

76.00 Top of rocky spur, slope NW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.

By 2nd set 79.97 chs.; the mean of which is

6800 ft. 80.00 N. 110 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 1 ft. in the ground to bed rock for 60th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S., and 60 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.

A pinon tree 7 ins. dia. bears S. 57° 50′ E. 52 lks. dist. marked N.M., 60 M., B.T.

A pinon tree 7 ins. dia. bears N. 19° W. 30 lks. dist. marked Colo., 60 M., B.T.

Land, rolling.

Soil, rocky and sandy, 3rd rate.

Vegetation, sage, cedar and pinon.

Alt. 6800 ft.

Temp. 50°.

61st mile

S. 89° 52′ E on the tangent to the parallel.

49.58 Darling's 270th mile cor. bears S. 5 chs. A sandstone 5x12x16 ins. [illegible] mound, marked 1868 on W. Other [illegible] indistinct. I destroyed this cor.

Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point,

By 1st set 80.06 chs.,

By 2nd set 79.94 chs.; the mean of which is

6925 ft. 80.00 N. 129 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for the 61st mile cor.

A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 61 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable. This cor. stands on cliff about 40 ft. high, bears NW. and SE.

A cedar tree 12 ins. dia. bears S. 13° 10′ E. 56 lks. dist. marked N.M., 61 M., B.T.

A cross on a sandstone slab 3x6x7 ft. bears

N. 26° 40′ W. 25 lks. dist., marked thus

COLO.
B.O

61 M.

Land, rolling and broken
Soil, rocky and sandy, 3rd rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6925 ft.
Temp. 60°.

62nd mile

S. 89° 52′ E. on the tangent to the parallel.
Ascend over rocks and through timber.

7000 ft. 10.00 Top of ridge bears NW. and SE.; descend.
25.12 Top of cliffs bears NW. and SE.; descend over rough broken, rocky country.
49.00 After careful search I failed to find Darling's 269th mile cor.
Difference between measurements of 80 chs. by 2 sets of chainmen in 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is
6075 ft. 80.00 N. 150 lks. from the tangent,
Set temporary corner. (See page 424.)
Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6075 ft.
Temp. 70°. October 31st. 1902.
At 4h 37m A. M. l.m.t. Nov. 1st, 1902 (having carefully adjusted the transit yesterday afternoon) I observe Polaris at western elongation and mark a point in this line on a plug driven in the ground N. of my station. At 7h A. M. I lay off the azimuth of Polaris 1° 31.1′ to the east and mark a poin' in the true meridian thus found on a plug

driven in the ground N. of my station. The magnetic bearing of the meridian is N. 13° 50′ W. This gives the magnetic variation 13° 50′ E. I now lay off 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of 4 sights was used with the instrument reversed at each sight.

63rd mile

East on the tangent to the parallel.

2.00 Leave timber at foot of hills, enter little valley, bears NW. and SE.

7.50 Wagon trail bears NW. and SE.

11.21 Stadia measurement,
Angle 6°+, Rod 9.78 ft. double=1956 ft.×.9891=1934.68 ft.+C.=1.14 ft.=1935.82 ft.=29.33 chs.+11.21 chs.=40.54 chs.

12.00 Dry bed of stream, 10 lks. wide, course SE. Bottom of Cox's Canon.

20.00 Dry gulch, course S.

30.00 Enter timber, leave valley bears N. and S.; ascend.

40.54 On E. Wall of Cox's canon about 300 ft. high, bears N. and S.; ascend over broken rock.
Tape measurement,

49.00 After careful search failed to find Darling's 268th mile cor.
Stadia measurement
Angle 6°+, Rod 9.95 double=1990×.9891=1969.31 ft.+C.=1.14 ft.=1969.45 ft.=29.84 chs.=50.32 chs.=80.16 chs—0.16 chs.=

6575 ft. 80.00 N. .76 of a lk. from the tangent.
Set temporary cor.
Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, grass, sage, cottonwood and scrub cedar and pinon.
Alt. 6575 ft.
Temp. 50°.

64th mile

S. 89° 59′ E. on the tangent to the parallel
Ascend over rocks and through brush.
0.52 On rock cliff bears NW. and SE.
41.00 Rocky gulch near head course NW.
49.00 After careful search I failed to find any trace of Darling's 267th mile cor.
72.00 Top of hill bears N. and S.
6775 ft. 76.30 Brow of river bluff bears NW. and SE.; altitude 6775 ft.
Descend towards Rio Las Animas.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is
6650 ft. 80.00 N. 3 lks. from the tangent.
Set temporary cor.
Land, broken and hilly.
Soil, sandy and gravelly, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6650 ft.
Temp. 50°.

65th mile

S. 89° 59′ E. on the tangent to the parallel
Descend steep rocky bluff.
5.00 Dry ravine, course NE.
12.00 On spur slope NE.
6000 ft. 42.00 Foot of bluff bears N. and S.
51.80 Darling's 266th mile cor. bears S. 8 chs., a granite stone 6x6x12 ins. above ground marked C. on N., 266 on E., N.M. on S. and 1868 on W. I destroyed this cor.
6000 ft. 64.00 Brow of bluff bears N. and S.; descend.
Difference between measurements of 65.84 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 65.89 chs.
By 2nd set 65.79 chs.; the mean of which is
5850 ft. 65.84 Point from which astronomical station No. 2 bears S. 10.80 chs.

The latitude of this station by astronomical observations on the nights of Sept. 27th, 28th, 29th and 30th, 1902, was found to be 36° 59′ 50.50″. The point on the 37th degree of North Latitude would fall 14.55 chs. N. of the station. Our falling is 10.80 chs.+6 lks. offset=10.86 chs. N. of the station and 3.69 chs. S. of the true parallel, as indicated by astronomical observations. As this is inside of the limit allowed by the Hon. Commissioner, I erect temporary astronomical monument North 6 lks. from the tangent at this point and continue this line. (See page 426.)

68.00 Foot of bluff bears N. and S. about 100 ft. high.

70.00 Irrigating ditch, course SE.

70.33 Stadia measurement to top of bluff across river,
Angle 11° +, Rod 8.57 double=1714 ft. × .9636=1651.61 ft.+C.=1.12 ft.=1652.73 ft. =25.04 chs.+70.33 chs.=95.37 chs.—80.00 chs.=15.37 on 66th mile.

72.50 Wagon road from Durango to Farmington bears N. and S.

73.00 Fence bears N. and S. Enter D. Doane's dooryard.

73.25 Doane's house about 25 lks. N.

75.00 Log stable 10 lks. S.
As I find that the 80 chs. point will come in the river, therefore at

5775 79.00 N. 7 lks. from the tangent.
Set temporary cor.

80.00 Comes in Rio Las Animas, clear water, swift current, 2 ft. deep, course SE.
Land, rough and broken.
Soil, sandy and stony, 3rd rate.
Vegetation, grass, sage, willow, cottonwood and scrub cedar and pinon.
Alt. 5775 ft.
Temp. 40°. November 1st, 1902.

I examine the adjustments of the transit, compare the steel tape with the standard and find everything correct.

——66th mile——

S. 89° 58′ E. on the tangent to the parallel.

1.00 E bank of Rio Las Animas, course SE.: ascend through dense willow brush.

4.00 Foot of rock cliffs bears NW. and SE.; ascend.

15.37 Stadia point on top of cliffs about 400 ft. high bears NW. and SE. Enter scrub cedar and pinon.

Stadia measurement,

Angle 0°, Rod 7.31 single = 731 ft. + C. = 1.15 = 732.15 ft. = 11.09 chs. + 15.37 chs. = 26.36 chs.

26.36 Stadia point on wall of canon bears NE. and SW.

Stadia measurement,

Angle 1° +, Rod 10.80 double = 2160 ft. × .9997 = 2159.35 ft. + C. = 1.15 ft. = 2160.50 ft. = 32.73 chs. + 26.36 chs. = 59.09 chs.

42.00 Bottom of dry canon about 300 ft. deep, course SW.

59.09 Stadia point on E. wall of canon bears NE. and SW.; ascend by tape measurement.

70.66 Stadia measurement,

Angle 5°, Rod 11.16 single = 1116 ft. × .9924 = 1107.52 ft. + C. = 1.15 ft. = 1108.67 ft. = 16.80 chs. + 70.66 chs. = 87.46 chs. — 80 chs. = 7.46 chs. on 67th mile.

79.00 Bottom of rocky gulch, course NW.; ascend.

80.00 Comes in rocky gulch, impracticable to establish cor. at this point.

Land, very rough, broken and rocky.

Soil, sandy and rocky, 3rd rate.

Vegetation, scrub cedar and pinon.

——67th mile——

S. 89° 57′ E. on the tangent to the parallel.

7.46 Stadia point. Thence by tape measurement.

6650 ft.	10.00	N. 13 lks. from the tangent. Set temporary corner, marked 66.125 M. Altitude 6650 ft. Temp. 48°.
	11.00	Top of spur slope N.
	21.90	Top of spur slope N.; descend.
	27.00	Bottom of rocky canon about 200 ft. deep, course NW.; ascend. Difference between measurements of 70 chs. by 2 sets of chainmen is 8 lks. position of middle point By 1st set 70.04 chs. By 2nd set 69.96 chs.; the mean of which is 70.00 chs. + 10.60 chs.
7000 ft.	80.00	N. 19 lks. from the tangent. Set temporary corner. Land, rough and broken, very rocky. Soil, sandy and rocky, 3rd rate. Vegetation, scrub cedar and pinon. Alt. 7000 ft. Temp. 40°. November 2nd, no line run. Closed for the day, November 3rd, 1902.

I carefully adjust the transit in all its parts, compare the steel tapes with the standard and find them of correct length.

68th mile

S. 89° 57' E. on the tangent to the parallel, over broken rocky country.

40.00	Old trail bears NE. and SW.
52.00	Top of rocky ridge bears NE. and SW.; descend.
60.00	Darling's 263rd mile cor. bears S. 7.10 chs. A sandstone 4x12x20 ins. above ground marked C. on N., 263 on E., and N.M. on S. I destroyed this cor. Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point. By 1st set 80.03 chs.

By 2nd set 79.97 chs.; the mean of which is
6910 ft. 80.00 N. 27 lks. from the tangent.
Set temporary cor.
Land, rolling and broken
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6910 ft.
Temp. 60°.

69th mile

S. 89° 56' E. on the tangent to the parallel.
45.00 Dry ravine, course S.
58.00 After careful search I failed to find Darling's 262nd mile cor.
68.00 Dry gulch, course S.
78.50 Bottom of dry ravine, course SW.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
6950 ft. 80.00 N. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 69th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N M. on S. and 69 M. stamped in the center.
Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base 2 ft. high around the post.
Aspen a tree 12 ins. dia. bears N. 10° 10' E. 177 lks. dist. marked Colo. 69 M. B.T.
A yellow pine tree 28 ins. dia. bears S. 11° 50' W. 160 lks. dist. marked N.M. 69 M. B.T.
No other trees within limits suitable for bearing trees.
Land, rolling and broken.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon, scattering yellow pine, and spruce and sage brush.

Alt. 6950 ft.
Temp. 50°.

70th mile

S. 89° 55′ E. on the tangent to the parallel. Ascend through timber and brush.

45.00 Top of ridge bears N. and S.; descend.

51.00 Bottom of broad ravine, course SE.

56.55 Darling's 261st mile cor. bears S. 6.00 chs. dist. This is a restored corner. New cedar post properly marked. Darling's old decayed post lying beside it. May not be in original position. I destroyed this cor.

57.00 Flat spur slope S.

64.00 Bottom of dry ravine, course S.; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 80.02 chs.

By 2nd set 79.98 chs.; the mean of which is

80.00 Falls on rough W. slope. Impracticable to establish cor. at this point.

Land, rolling and broken.

Soil, sand and clay, 3rd rate.

Vegetation, yellow pine, spruce, cedar, pinon and sage brush.

November 4th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

71st mile

S. 89° 55′ E. on the tangent to the parallel. Ascend.

7025 ft. 14.00 N. 51 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 70th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 70.175 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high

around the post. Pits impracticable.
A pinon tree 10 ins. dia. bears N. 71° E. 89 lks. dist. marked Colo., 70.175 M., B.T.
A pinon tree 6 ins. dia. bears S. 31° 40' E. 45 lks. dist. marked N.M., 70.175 M., B.T.
A cedar tree 10 ins. dia. bears S. 54° 40' W. 44 lks. dist. marked N.M., 70.175 M. B.T.
A pinon tree 7 ins. dia. bears N. 66° W. 34 lks. dist. marked Colo., 70.175 M., B.T.
Alt. 7025 ft.
Temp. 48°.
Stadia measurement.
Angle 5° 4', Rod 7.75 double 1550 ft. × .9924 = 1538.22 ft. + C. 1.14 ft. = 1539.36 ft. = 23.32 chs. + 14.00 chs.

37.32 Top of ridge bears N. and S. Descend by tape measurement.

58.00 Failed to find Darling's 360th mile cor.
Difference between measurements of 42.68 chs. by 2 sets of chainmen is nothing, the mean is 42.68 − 37.32 chs.

000 ft. 80.00 N. 62½ lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 71st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 71 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A pinon tree 8 ins. dia. bears N. 35° E. 45 lks. dist. marked Colo., 71 M., B.T.
A pinon tree 12 ins. dia. bears S. 10° W. 180 lks. dist. marked N.M., 71 M. B.T.
No other trees within limits suitable for bearing trees.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass sage, scrub cedar and pinon.
Alt. 7000 ft.
Temp. 62°.

72nd mile

S. 89° 54' E. on the tangent to the parallel.

1.00 Bottom of draw, drains NE.; ascend.

7000 ft. 51.00 Top of ridge bears NE. and SW.; descend.

57.00 Darling's 259th mile cor. bears S. 6.15 chs
A rock in place 6x6x4 ft. marked 259 on E., other marks illegible.
I destroyed the remaining marks.
Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is

6725 ft. 80.00 N. 76 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 72nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 72 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable. This cor. stands on gravelly spur, slope NE.
A cedar tree 12 ins. dia. bears N. 30° E. 37 lks. dist. marked Colo., 72 M., B.T.
A pinon tree 10 ins. dia. bears S. 18° E. 66 lks. dist. marked N.M., 72 M., B.T.
A cedar tree 12 ins. dia. bears S. 45° W. 13 lks. dist. marked N.M., 72 M., B.T.
A cedar tree 12 ins. dia. bears N. 60° W. 60 lks. dist. marked Colo., 72 M., B.T.
Land, rolling.
Soil, sandy and gravelly, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6725 ft.
Temp. 26°.

November 5th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

73rd mile

S. 89° 53' E. on the tangent to the parallel.
Descend.

24.45 Bottom of dry ravine course SE., 100 ft. deep; ascend.

57.25 Darling's 258th mile cor. bears S. 5.88 chs. A sandstone 3x18x22 ins. above ground, in stone mound, marked C. on N., N.M. on S. I destroyed this cor.

*65.00 Top of spur slope S. about 300 ft. above last cor.

70.00 Dry gulch, course S.; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

6750 ft. 80.00 * N. 92 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 73rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 73 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 10 ins. dia. bears N. 24½ E. 31 lks. dist. marked Colo. 73 M., B.T.

A cedar tree 12 ins. dia. bears S. 39° 10' W. 13 lks. dist. marked N.M., 73 M., B.T.

No other trees within limits suitable for bearing trees.

Land, rolling.

Soil, sandy and rocky, 3rd rate.

Vegetation, scrub cedar and pinon.

Alt. 6750 ft.

Temp. 45°.

74th mile

S. 89° 53' E. on the tangent to the parallel.

12.50 Top of ridge bears NW. and SE. about 100 ft. above cor.; descend.

	50.00	Bottom of dry ravine, course SE. 150 ft. deep; ascend.
	57.10	Darling's 257th mile cor. bears S. 6 chs. A sandstone 10x10x13 ins. above ground marked C. on N., 257 on E., N.M. on S., and 1868 on W. I destroyed this corner.
		Difference between measurements of 64.62 chs. by 2 sets of chainmen is 4 lks. position of middle point
		By 1st set 64.64 chs.
		By 2nd set 64.60 chs.; the mean of which is
6830 ft.	64.62	On spur slope S., stadia measurement,
		Angle 4 —, Rod 12.68 single 1268 ft. + .9951 1261.79 ft. + C. 1.15 ft. 1262.94 ft. 19.13 chs. 64.62 chs. 83.75. 3.75 chs. 80.00 chs.
	78.00	Dry ravine course S.; ascend.
6810 ft.	80.00	N. 110 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 74th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 74 M. stamped in the center. Pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A pinon tree 10 ins. dia. bears N. 38 E. 50 lks. dist. marked Colo., 74 M., B.T.
		A pinon tree 12 ins. dia. bears S. 42 20' E. 55 lks. dist. marked N.M. 74 M., B.T
		A cedar tree 10 ins. dia. bears S. 40 20' W. 144 lks. dist. marked N.M. 74 M., B.T.
		No tree NW. within limits suitable for bearing tree.
		Land, rolling and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6810 ft.
		Temp. 65°.

— 75th mile —

S. 89 52' E. on the tangent to the parallel.

Ascend.

10.00 Top of spur slope S. about 100 ft. high. descend.

44.00 Dry gulch course S.; ascend.

54.50 Top of spur slope S. about 100 ft. high; descend.

61.00 Darling's 256th mile cor. bears S. 6.00 chs. A sandstone 4x10x12 ins. marked 256, other marks indistinct. I destroyed this corner.

62.00 Deserted cabin and corrals about 12 chs. S.

67.00 Bottom of dry canon, course SW., called Pump Canon.

700 ft. 75.00 Dry gulch, course NW.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs. the mean of which is

750 ft. 80.00 N. 129 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 75th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 75 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 24 ins. dia. bears N. 12° 25' E. 140 lks. dist. marked Colo. 75 M., B.T.

A pinon tree 12 ins. dia. bears N. 15° W. 175 lks. dist. marked Colo., 75 M., B.T.

No trees on other side of line within limits.

Land, rolling and broken.

Soil, sand and clay, 3rd rate

Vegetation, grass, sage, cedar and pinon.

Alt. 6750 ft

Temp. 65°.

76th mile

S. 89° 52' E. on the tangent to the parallel.

10.00 Circular corral about 4 chs. S. Foot of hill bears NW. and SE.; ascend.

5900 ft. 36.00 Top of spar about 150 ft. above last cor.,

slope S., thence along steep rocky S. slope. Difference between measurements of 52.24 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 52.27 chs.

By 2nd set 52.21 chs.; the mean of which is

6900 ft. 52.24 On rocky spur slope S.

Stadia measurement,

Angle 5 +, Rod 8.23 double=1646×.9924=1633.49+C.=1.14 ft.=1634.63 ft.=24.76 chs. +52.24 chs.=77.00 chs.

70.00 Bottom of dry canon 150 ft. deep, course SW. Trail bears NE. and SW.

77.00 Stadia point on E. wall of canon bears NE. and SW.

Tape measurement,

6940 ft. 80.00 N. 150 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 76th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 76 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 8 ins. dia. bears N. 23½ E. 50 lks. dist. marked Colo., 76 M., B.T.

A pinon tree 10 ins. dia. bears S. 44° 40′ E. 64 lks. dist. marked N.M., 76 M., B.T.

A pinon tree 6 ins. dia. bears S. 57° 25′ W. 24 lks. dist. marked N.M., 76 M., B.T.

A cedar tree 12 ins. dia. bears N. 58° W. 35 lks. dist. marked Colo., 76 M., B.T.

Land, rough and broken.

Soil, rocky and sandy, 3rd rate.

Vegetation, cedar and pinon.

Alt. 6940 ft.

Temp. 34°.

November 6th, 1902.

I examine the adjustments of the transit and compare the steel tapes with the standard; find all correct and in adjustment.

77th mile

S. 89° 51′ E. on the tangent to the parallel.
Ascend.

7000 ft. 18.00 Top of high ridge bears NW. and SE.; descend.

50.00 Bottom of deep dry ravine, course SE. 200 ft. deep; ascend along steep brushy N. slope

60.00 Top of spur slope N. about 100 ft. above bottom of ravine.

Difference between measurement of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

6800 ft. 80.00 Falls in deep rocky dry ravine, course NW. Impracticable to establish the cor. at this point.

Land, rough and broken.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, scrub cedar and pinon.

78th mile

S. 89° 50′ E. on the tangent to the parallel.
Ascend steep bluff.

6910 ft. 10.00 N. 175 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 77th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N.; N.M. on S. and 77.125 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A cedar tree 14 ins. dia. bears N. 19° E. 15 lks. dist. marked Colo., 77.125 M., B.T.

A cedar tree 8 ins. dia. bears S. 77° 45′ E. 45 lks. dist. marked N.M., 77.125 M., B.T.

A cedar tree 10 ins. dia. bears S. 43½° W. 42 lks. dist. marked N.M., 77.125 M., B.T.

A cedar tree 14 ins. dia. bears N. 30° 40′ W. 35 lks. dist. marked Colo., 77.125 M., B.T.

7100 ft. 20.00 Top of spur slope N.; descend along N. slope.

40.00 Top of spur slope N.; descend.
Difference between measurements of 70 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 70.03 chs.
By 2nd set 69.97 chs.; the mean of which is 70.00+10.00 chs =

7000 ft. 80.00 N. 196 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 78th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 78 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 12 ins. dia. bears N. 15° E. 43 lks. dist. marked Colo., 78 M., B.T.
A pinon tree 10 ins. dia. bears S. 75° W. 42 lks. dist marked N.M., 78 M., B.T.
No other trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 7000 ft.
Temp. 65°.

79th mile

S. 89° 50' E. on the tangent to the parallel; descend along N. slope.

59.50 A sandstone 14x12x8 ins. above ground bears S. 7.00 chs. dist. marked C.C., Col. on N., R. 7 on E., T. 32 N., N.M. on S., and R 8 on W. faces. I leave this cor. as I find it. After careful search both E and W. of this stone, I failed to find any cor. bearing the Darling marks.

62.00 Top of spur slope N.; descend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.

By 2nd set 79.98 chs.; the mean of which is
5 ft. 80.00 N. 221 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for the 79th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 79 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high, around the post. Pits impracticable.
A cedar tree 6 ins. dia. bears S. 35 E. 19 lks. dist. marked N.M., 79 M., B.T.
A pinon tree 10 ins. dia. bears N. 10 W. 46 lks. dist. marked Colo., 79 M., B.T.
No other trees within limits suitable for bearing trees.
This cor. stands on E. side of low spur slope N.
Land, rolling.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6825 ft.
Temp. 55 .

November 7th, 1902.

——80th mile——

S. 89° 49' E. on the tangent to the parallel.
Descend.
1.00 Dry gulch course N.; ascend.
4.00 Top of spur slope N.; descend.
24.30 Top of river bluff, bears N. and S.; descend.
28.00 Leave timber bears N. and S., enter sage brush.
0 ft. 37.00 Foot of bluff about 100 ft. high, bears N. and S., thence across sage flat.
0 ft. 50.00 Top 2nd bluff bears NW. and SE. According to Darling's field notes his 251st mile cor. should stand on the brow of this bluff. After careful search I failed to find any trace of it.
Descend.
5 ft. 52.00 Foot of rocky bluff about 75 ft. high, bears N. and S.

Enter meadow on river bottom.

6075 ft. 61.50 W. bank of Las Pinos River, course S. about 2 chs. then W. to foot of bluff, then S. Stadia measurement across stream.

62.85 E. bank of river, 3 ft. high, course S. about 5 chs. then W. about parallel to opposite bank, clear water about 2 ft. deep; enter willow and cottonwood brush.

65.00 Leave brush, enter meadow; Rodriguez's field bears N. and S.

68.80 Wire fence bears N. and S. Rodriguez's house about 4 chs. SW.

69.25 Center of road bears N. and S. from Ignacio to the San Juan River settlements.
La Boca station on the D. & R. G. W., R. R. about 1/2 mile N., La Boca P.O. Mexican set tlement, about 1/2 dozen adobe houses about 10 chs. S.; ascend.

69.75 Irrigation ditch, course S.

72.00 Top of bluff about 75 ft. high bears N. and S.

73.80 Wagon road bears NE. and SW.

Difference between measurements of 78.65 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 78.67 chs.
By 2nd set 78.63 chs.; the mean of which is 78.65 chs.+1.35 chs. (Distance across the river)=

6130 ft. 80.00 N. 247 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 80th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 80 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
E. edge of rocky hill bears N. 39° E. about 1 mile dist.
Center of round peak bears S. 84° 36' E. about 2 miles distant.
A conical peak covered with timber bears S. 9° E. about 1 mile distant.

N. edge of partly timbered gray peak bears N. 79° 50′ W. about 2 miles distant.
This cor. stands on first bench above the river at head of little draw that drains S
Land, broken, valley and mesa.
Soil, rocky, clay and sand, 3rd rate.
Vegetation, grass, sage, willow and cotton wood.
Alt. 6130 ft.
Temp. 70°.

November 8th, 1902

Nov. 9th, at 4h 05m A.M. l.m.t. (after having carefully adjusted the transit last evening) I observe Polaris at western elongation, and mark a point in the line on a plug driven in the ground about 10 chs. N. of my station. At 7h A. M. Nov. 9th, 1902, I lay off the azimuth of Polaris 1° 30.9′ to the E. and mark a point in the true meridian thus found on a plug driven in the ground 10 chs. N. of my station.
The magnetic bearing of the meridian is N. 13° 50′ W.
This gives magnetic variation 13° 50′ E.
I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles the mean of 4 sights was used, with the telescope reversed at each sight.
I compare the steel tapes with the standard and find them of correct length.

——81st mile——

East on the tangent to the parallel.

4.00 Top of spur slope S.; descend.

11.00 Dry ravine course SW.; ascend gradually.

50.00 After a careful search I failed to find any tract of Darling's 250th mile cor.

6160 ft.	73.00	Foot of hills bears NE. and SW.; leave velley, enter timber; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
6210 ft.	80.00	N. .76 of a link from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 81st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 81 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 12 ins. dia. bears N. 50° E. 84 lks. dist. marked Colo., 81 M., B.T.
		A cedar tree 10 ins. dia. bears S. 48° E. 67 lks. dist. marked N.M. 81 M., B.T.
		A cedar tree 12 ins. dia. bears S. 31½° W. 45 lks. dist. marked N.M., 81 M., B.T.
		A cedar tree 10 ins. dia. bears N. 59° 20′ W. 98 lks. dist. marked Colo., 81 M., B.T.
		Land, rolling.
		Soil, sand and clay, 3rd rate
		Vegetation, grass, sage, scrub cedar and pinon.
		Alt. 6210 ft.
		Temp. 35°.

——82nd mile——

		S. 89° 59′ E. on the tangent to the parallel. Ascend through scrub cedar and pinon timber.
	16.60	Top of spur slope N. Thence along N. slope.
6875 ft.	60.00	Top of ridge bears NE. and SW.; descend along S. slope.
	70.00	Bottom of ravine near head, course S.; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is
6340 ft. 80.00 N. 12 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 82nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 82 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 11 ins. dia. bears N. 27° 45′ E. 29 lks. dist. marked Colo., 82 M., B.T.
A cedar tree 8 ins. dia. bears S. 21½° E. 49 lks. dist. marked N.M., 82 M., B.T.
A pinon tree 10 ins. dia. bears S. 36½° W. 35 lks. dist. marked N.M., 82 M., B.T.
A cedar tree 11 ins. dia. bears N. 46° 10′ W. 42 lks. dist. marked Colo., 82 M., B.T.
This cor. stands on brow of bluff sloping SW.
Land, rolling.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.
Alt. 6840 ft.
Temp. 76°.

——83rd mile——

S. 89° 59′ E. on the tangent to the parallel
6840 ft. 12.00 Top of ridge bears NW. and SE.
24.00 Top of ridge bears NW. and SE.
Stadia measurement,
Angle 3′ —, Rod 11.54 double=2308 ft.×.9973=2301.77 ft.+C.=1.15 ft.=2302.92 ft.=34.89 chs.+24.00 chs.=58.80 chs.
50.90 Darling's 248th mile cor. bears S. 8.15 chs. dist. A decayed cedar post marked C. on N., 248 on E., and N.M. on S. I destroyed this cor.
6550 ft. 52.00 Bottom of ravine course SE.; ascend.
6650 ft. 58.89 Stadia point on cliffs about 100 ft. high, bear NW. and SE.
Tape measurement,

6650 ft.	61.00	On wall of canon, bears NE. and SW.; descend.
		Difference between measurements of 45.11 chs. by 2 sets of chainmen is 4 lks. position of middle point
		By 1st set 45.13 chs.
		By 2nd set 45.09 chs.; the mean of which is 45.11 chs. +34.89 chs.
6575 ft.	80.00	N. 7 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 83rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on W., N.M. on S. and 83 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		A cedar tree 10 ins. dia. bears N. 5° W. 43 lks. dist. marked Colo., 83 M., B.T.
		A cedar tree 8 ins. dia. bears S. 58½° E. 55 lks. dist. marked N.M., 83 M., B.T.
		A pinon tree 6 ins. dia. bears S. 30° 25' W. 61 lks. dist. marked N.M., 83 M., B.T.
		A cedar tree 7 ins. dia. bears N. 61½° W. 60 lks. dist. marked Colo., 83 M., B.T.
		This cor. stands on flat in thick timber.
		Land, rolling and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, sage, scrub cedar and pinon.
		Alt. 6575 ft.
		Temp. 60°.

——84th mile——

S. 89° 58' E. on the tangent to the parallel.

6575 ft.	7.08	On top of cliff, wall bears NE. and SW.; descend.
		Stadia measurement,
		Angle 5°—, Rod 8.85 double=1770 ft.×.9924=1756.55 ft.+C.=1.14 ft.=1757.69 ft.=26.63 chs.+7.08 chs.=33.71 chs.
	12.00	Foot of cliffs about 150 ft high, bear NE. and SW.

18.00 Dry gulch course NE.: ascend along S. slope.

33.71 Stadia point.
Stadia measurement,
Angle 6° +, Rod 9.23 double=1846 ft.× .9891=1825.88 ft.+C.=1.14 ft.=1827.02 ft. =27.68 chs.×33.71 chs.=61.39 chs.

46.00 Top of spur slope N.

46.70 Darling's 247th mile cor. bears S. 8.53 chs. A sandstone 18x10x5 ins. above ground marked C. on N., 247 on E., N.M. on S., 1868 on W. has been reset in a mound with pits and bearing trees. I destroyed this cor.

61.39 Stadia point, thence by tape measurement.

6480 ft. 73.23 On top of bluff, wall of rocks bears S. and N. about 3 chs. then NW.: descend.
Stadia measurement,
Angle 29° —, Rod 4.20 single=420 ft.×.7650 =321.30 ft.+C.=1.00=322.30=4.88 chs.+ 73.23 chs.=78.11 chs.

78.11 Stadia point thence by tape measurement.

6340 ft. 80.00 N. 12 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 84th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 84 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A cedar tree 8 ins. dia. bears N. 45½° E. 43 lks. dist. marked Colo., 84 M., B. T.
A cedar 12 ins. dia. bears S. 33° E. 68 lks. dist, marked N.M., 84 M., B.T.
A cedar tree 6 ins. dia. bears N. 71° 10′ W. 43 lks. dist. marked Colo., 84 M., B.T.
No tree SW. within limits suitable for bearing tree.
This cor. stands near foot of cliffs about 150 ft. high that bear N. and S.
Land, rough and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, sage, scrub cedar and pinon.

Alt. 6340 ft.
Temp. 50 .

November 9th, 1902.

I examine the levels and collimation of the transit, compare the steel tapes with the standard and find all correct and in adjustment.

85th mile

S. 89 57' E. on the tangent to the parallel.
Descend.

6.00 Foot of bad land slope, 50 ft. below cor., bears N. and S.
Leave timber, enter sage brush valley, bears N. and S.

14.00 Dry gulch, course NE.

47.00 Darling's 246th mile cor. bears S. 8.76 chs. An old decayed post re-set with a new one beside it, marked C. on N., 246 on E., N.M. on S., 1868 on W. I destroyed this cor.

58.00 Dry gulch from NW. course E., thence down general course of same.
Difference between measurements of 80 chs. by 2 sets of chainmen is nothing, the mean is

6150 ft. 80.00 N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 85th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 85 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
A conical peak covered with timber bears N. 32° 45' E.
A conical point on Conejos Range bears N. 86° 40' E.
A N. salient of S. bluff bears S. 49° 50' E.
A N. salient of high ridge we have passed over bears N. 75° 35' W.

Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage and scattering timber.
Alt. 6150 ft.
Temp. 58°.

86th mile

S. 89° 57' E. on the tangent to the parallel.
Down the general course of dry arroyo.

20.00 Leave arroyo, course NE.

47.00 Darling's 245th mile cor. bears S. 8.60 chs. An old post with new one beside it, marked C. on N., 245 on E., N.M. on S.; I destroyed this cor.

59.50 Same arroyo in rocky canon, course SE.

65.00 Same arroyo in canon, course NE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 80.01 chs.

By 2 nd set 79.99 chs.; the mean of which is

6127 ft. 80.00 N. 27 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 86th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 86 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

The section house at Vallejo station on D. & R. G. W. R. R. bears N. 0° 30' W. about 1 mile dist.

Conical timbered peak bears N. 23° 38' E.

N. salient of S. bluff bears S. 23° 40' E.

Tree on conical peak S. of San Juan River bears S. 48° 24' E.

Land, gently rolling.

Soil, sand and clay, 3rd rate.

Vegetation, grass and sage.

Alt. 6127 ft.
Temp. 70°.

87th mile

S. 89° 56' E. on the tangent to the parallel.

7.50 Dry arroyo, course N.

47.05 Darling's 244th mile cor. bears S. 8.55 chs. New post and small sandstone. Post marked C. on N., 244 on E., N.M. on S.; I destroyed this cor.

52.00 Road bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is

6110 ft. 80.00 N. 37 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 87th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 87 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft high around the post.

Cone shaped timbered peak bears N. 13° 40' E.

Tree on top of cone shaped peak S. of San Juan River bears S. 38° 40' E.

E. end of high bluff bears S. 7° 30' W.

N. salient of high ridge that the line passed over bears N. 81° 30' W.

Land, gently rolling.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage and greasewood.

Alt. 6110 ft.

Temp. 75°.

88th mile

S. 89° 55' E. on the tangent to the parallel.

Over rolling lands.

5.00 Dry arroyo, course SE.; small pond or reservoir about ½ mile SE.

42.00 Top of spur slope S.; descend.
47.38 Darling's 243rd mile cor. bears S. 8.00 chs. A sandstone top broken off marked 243; I destroy this cor.
52.00 Dry bed of creek 100 lks. wide, course SW.; ascend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
6200 ft. 80.00 N. 49 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 88th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 88 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. Raised a mound of earth 5 ft. base 2 ft. high around the post.
Cone-shaped timbered peak bears N. 2° 08' E.
E. end of bluff bears S. 48° 10' W.
N. salient of high ridge back on line bears N. 83° 09' W.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage and greasewood.
Alt. 6200 ft.
Temp. 74°.

——89th mile——

S. 89° 55' E. on the tangent to the parallel. Ascend.
16.00 Enter scattering timber bears N. and S.
25.00 On mesa bears NE. and SW.
31.50 Wagon road bears NW. and SE.
47.00 After a careful search I failed to find Darling's 242nd mile cor.
61.00 Wagon road bears NW. and SE.
Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position

of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is
6230 ft. 80.00 N. 62 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 89th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 89 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A pinon tree 10 ins. dia. bears N. 77° 35' E. 98 lks. dist. marked Colo., 89 M., B.T.
A cedar tree 10 ins. dia. bears S. 18° E. 88 lks. dist. marked N.M., 89 M., B.T.
A cedar tree 12 ins. dia. bears N. 51° W. 200 lks. dist. marked Colo., 89 M., B.T.
No tree SW. within limits suitable for bearing tree.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass, sage, scattering scrub cedar and pinon.
Alt. 6230 ft.
Temp. 68°.

——90th mile——

S. 89° 54' E. on the tangent to the parallel.
8.50 Brow of bluff bears NE. and SW.; descend.
27.50 Bottom of ravine about 150 ft. deep, course SW.; ascend.
6180 ft. 35.00 Top of bluff bears NE. and SW. D. & R. G. W. R. R. track about 10 chs. N. Failed to find Darling's 241st mile cor.
6180 ft. 45.47 Top of river bluff, bears NE. and SW.
Stadia measurement,
Angle 4'—, Rod 8.51 double =1702 ft.×.9951 =1693.66 ft.+C.=1.15 ft.=1694.81 ft.= 25.68 chs.+45.47 chs.=71.15 chs.
53.30 W. edge of water in San Juan River, about 100 ft. below top of bluff, course SW.

	55.00	E. bank of river, course SW.; clear water, 3 ft. deep; enter willow and cottonwood brush. Abeytia's house about 10 chs. SW.
	66.00	Enter cultivated field bears NE. and SW.; property of J. J. Abeytia.
	71.15	Stadia point.
		Tape measurement,
	72.20	Irrigation ditch, course SW.
		Difference between measurements of 54.32 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 54.33 chs.
		By 2nd set 54.31 chs.; the mean of which is 54.32 chs.+25.68 chs.=
6100 ft.	80.00	N. 76 lks., from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 90th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N.M. on S. and 90 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		This cor. stands in cultivated field.
		A cottonwood tree 6 ins. dia. bears N. 68 40′ E. 435 lks. dist. marked Colo., 90 M., B. T.
		A cottonwood tree 18 ins. dia. bears N. 74 50′ W. 301 lks. dist. marked Colo., 90 M., B.T.
		No trees S. of line along here.
		Rosa P. O. a Mexican settlement about 60 chs. SW.
		Land, mesa and river bottom.
		Soil, sand and clay, 2nd and 3rd rate.
		Vegetation, grass, sage, greasewood and willow, cottonwood and pinon and cedar on bluff.
		Alt. 6100 ft.
		Temp. 60°.

November 10th, 1902.

——91st mile——

I examine the transit and find it in adjustment, compare the steel tapes with standard and find them of correct length.

S. 89° 53' E. on the tangent to the parallel.

18.25 Irrigating ditch, course SW. Leave irrigated land; ascend over rolling sagebrush valley, bears NE. and SW.

22.00 Wagon road bears NE. and SW.

32.75 Wagon road bears NE. and SW.

42.80 Wagon road bears NE. and SW., from Rosa to Arboles.

47.00 After careful search I failed to find Darling's 240th mile cor.

6200 ft. 65.00 Foot of hills, leave valley of the San Juan bears NE. and SW. Enter timber; ascend. Difference between measurements of 72.45 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 72.46 chs.

By 2nd set 72.44 chs.; the mean of which is 72.45 chs.

72.45 Top of spur, slope S.

Stadia measurement,

Angle 14° +, Rod 11.40 single=1140 ft.× .9415=1073.31 ft.+C.=1.11 ft.=1074.42 ft. =16.28 chs.+72.45 chs.=88.73 chs.—80.00 chs.—8.73 chs. on 92nd mile.

80.00 Falls on steep slide bank. Impracticable to establish corner at this point.

Land, valley and rough hills.

Soil, sand and clay, 2nd and 3rd rate.

Vegetation, grass, sage, scrub cedar and pinon.

——92nd mile——

S. 89° 53' E. on the tangent to the parallel.

6610 ft. 8.73 N. 94 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 91st mile cor. A brass cap on the top of the

pipe has raised letters Colo. on N., N.M. on S. and 91.109 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A cedar tree 13 ins. dia. bears N. 13° 80′ E. 31 lks. dist. marked Colo., 91.109 M., B.T.
A pinon tree 5 ins. dia. bears S. 6° 05′ E. 31 lks. dist. marked N.M., 91.109 M., B.T.
No other trees within limits suitable for bearing trees.
Arboles R. R. station and mouth of Piedras River about a mile a little W. of N.
This cor. stands on sharp spur sloping W.
Steep slide bank on S.
Alt. 6610 ft.
Temp 70°.
Stadia measurement,
Angle 13° +, Rod 9.53 single=953 ft.×.9494 =904.78 ft.+C.=1.12 ft.=905.90 ft.=13.72 chs.+8.73 chs.=22.45 chs.

6180 ft. 22.45 On sharp spur slope S.; descend.
Stadia measurement,
Angle 2° —, Rod 13.20 single=1320 ft.×.9988 =1318.42 ft.+C.=1.15 ft.=1319.57 ft.= 19.99 chs.+22.45 chs.=42.44 chs.

6700 ft. 28.00 Bottom of dry ravine, course NE.
42.44 On spur slope N.; descend.
Stadia measurement,
Angle 3° —, Rod 42.30 double=2460 ft.× .9973+2453.36 ft.+C.=1.15 ft.=2454.51 ft.= 37.19 chs.+42.44 chs.=79.63 chs.
65.00 Bottom of dry ravine, 200 ft. deep, course NW.; ascend.
79.63 Stadia point, thence by tape measurement.

6800 ft. 80.00 N. 110 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 92nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 92 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.
This cor. stands on spur sloping N.
A pinon tree 6 ins. dia. bears N. 63½ E. 44 lks. dist. marked Colo., 92 M., B.T.
A pinon tree 7 ins. dia. bears S. 18° 45′ E. 39 lks. dist. marked N.M., 92 M., B.T.
A cedar tree 9 ins. dia. bears S. 59° W. 36 lks. dist. marked N.M., 92 M., B. T.
A cedar tree 7 ins. dia. bears N. 25¼° W. 41 lks. dist. marked Colo., 92 M., B. T.
Land, very rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, cedar and pinon.
Alt. 6800 ft.
Temp 45°.

November 11th, 1902.

November 12th, rained all day, no line run.

November 13th, I examine the transit and find it in adjustment, compare the tapes with the standard and find them of correct length.

93rd mile

S. 89° 52′ E. on the tangent to the parallel.
Stadia measurement,
Angle 12°+, Rod 13.30 double=2600 ft.× .9568=2487.68 ft.+C.=1.1° ft.=2488.80 ft. =37.70 chs.

37.70 Stadia point, thence by tape measurement: ascend.

44.00 Top of high spur slope N., thence along steep brushy N. slope.

Difference between measurements of 42.30 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 42.32 chs.
By 2nd set 42.28 chs.; the mean of which is 42.30 chs.=37.70 chs.=

80.00 Falls on steep N. slope in dense oak under-

brush, impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, cedar, pinon and oak brush.

94th mile—

S. 89° 52' E. on the tangent to the parallel.
Ascend along steep N. slope.

7500 ft. 8.00 N. 131 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 93rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 93.1 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
This cor. stands on spur sloping N.
A pinon tree 5 ins. dia. bears N. 65° W. 99 lks. dist. marked Colo., 93.1 M., B.T.
A sandstone in place 6x6x5 ft., a cross (X) on the face of which bears S. 45° W. 110 lks. dist. mkd. N.M., 93.1 M., B.O.
No other trees or objects within limits suitable for bearing trees.
This cor. stands on steep N. slope about 150 lks. down from the top of the bluff.
Alt. 7500 ft.
Temp. 48°.
Thence along N. slope of bluff about 1400 ft. above the San Juan River.

40.00 Top of spur slope N.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is

7500 ft. 80.00 N. 150 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 94th mile cor. A brass cap on the top of the

pipe has raised letters Colo. on N., N.M. on S. and 94 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
No bearing trees.
Land, rolling and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, scrub cedar, pinon and oak brush.
Alt. 7500 ft.
Temp. 40°.

95th mile

S. 89° 51' E. on the tangent to the parallel.
Along steep N. slope of bluff.

7500 ft. 32.00 Top of spur slope NE.; descend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is

7125 ft. 80.00 N. 17' 2 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 95th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 95 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine 14 ins. dia. bears N. 70° E. 110 lks. dist. marked Colo., 95 M., B.T.
A yellow pine tree 14 ins. dia. bears S. 30° W. 85 lks. dist. marked N.M., 95 M., B.T.
A yellow pine tree 10 ins. dia. bears N. 6° W. 82 lks. dist. marked Colo., 95 M., B.T.
No tree SW., within limit suitable for bearing tree.
Land, rolling and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, cedar, pinon, yellow pine and oak brush.

Alt. 7125 ft.
Temp. 40°.

November 13th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

—96th mile—

S. 89° 50′ E. on the tangent to the parallel.

18.81 On bluff bears NE. and SW.; descend.
Stadia measurement,
Angle 6° —, Rod 8.69 double=1738 ft.×.9891 =1719.06 ft.+C.=1.14 ft.=1720.20 ft.=26.06 chs.+18.81 chs.=44.87 chs.

28.00 Bottom of ravine, course NE.; ascend.

44.87 Stadia point, top of spur slope N.
Tape measurement,
Difference between measurements of 35.13 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 35.15 chs.
By 2nd set 35.11 chs.; the mean of which is 35.13 chs.+44.87 chs.=

80.00 Falls on steep brushy hillside. Impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, cedar, pinon, yellow pine and oak brush.

—97th mile—

S. 89° 50′ E. on the tangent to the parallel.

6800 ft. 12.00 N. 200 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 96th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 96.45 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A cedar tree 10 ins. dia. bears N. 12° 45′ E. 62 lks. dist. marked Colo., 96.15 M., B.T.
A cedar tree 12 ins. dia. bears S. 72° E. 69 lks. dist. marked N.M., 96.15 M., B.T.
A pinon tree 5 ins. dia. bears S. 87° 40′ W. 92 lks. dist. marked N.M., 96.15 M., B.T.
A cedar tree 8 ins. dia. bears N. 31° W. 46 lks. dist. marked Colo., 96.15 M., B.T.
This cor. stands on rocky spur slope N.
Alt. 6800 ft.
Temp. 54°.
Descending along N. slope over spurs.

75.00 Dry gulch, course NE.

Difference between measurements of 68 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 68.04 chs.
By 2nd set 67.96 chs.; the mean of which is 68.00 chs. + 12.00 chs. =

6810 ft. 80.00 N. 221 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 97th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 97 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A cedar tree 8 ins. dia. bears N. 37° E. 71 lks. dist. marked Colo., 97 M., B.T.
A yellow pine tree 13 ins. dia. bears S. 30½° E. 151 lks. dist. marked N.M., 97 M., B.T.
A cedar tree 8 ins. dia. bears S. 31° 20′ W. 45 lks. dist. marked N.M., 97 M., B.T.
A pinon tree 6 ins. dia. bears N. 13° W. 74 lks. dist. marked Colo., 97 M., B.T.
Land, rolling and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, cedar, pinon, yellow pine, oak brush.
Alt. 6810 ft.
Temp. 50°.

98th mile

S. 89° 49' E. on the tangent to the parallel.

Ascend.

18.50 Top of spur slope N. Thence descending along N. slope over spur.

6200 ft. 72.00 Foot of hills enter San Juan Valley, bears NW. and SE.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point,

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is

6200 ft. 80.00 N. 247 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 98th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 98 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.

A cottonwood tree 24 ins. dia. bears N. 58° 35' E. 86 lks. dist. marked Colo., 98 M., B.T.

A cottonwood tree 14 ins. dia. bears S. 32½° E. 140 lks. dist. marked N.M., 98 M., B.T.

A cottonwood tree 14 ins. dia. bears S. 43° 20' W. 115 lks. dist. marked N.M., 98 M., B.T.

A cottonwood tree 15 ins. dia. bears N. 24½° W. 78 lks. dist. marked Colo., 98 M., B.T.

Land, rolling and valley.

Soil, clay and sandy loam, 2nd and 3rd rate.

Vegetation, grass, cedar, pinon, yellow pine and cottonwood timber; cottonwood, willow, sage and oak brush.

Alt. 6200 ft.

Temp. 40°.

November 14th, 1902.

Nov. 15th, at 3h 42m A. M. l.m.t., (having previously examined the transit and found it in perfect adjustment), I observe Polaris at western elongation and mark a point in

the line on a plug driven in the ground N. of my station.

At 7h A. M. I lay off the azimuth of Polaris 1° 31.1′ to the E. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 50′ W. This gives the magnetic variation 13° 50′ E.

I now lay off an angle of 90° from the meridian to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles the mean of 4 sights was used, with the telescope reversed at each sight.

99th mile

East on the tangent to the parallel.

2.64 W. bank of the San Juan River bears N. and S., bank 8 ft high.

3.64 Across river to sand bar; E. edge of water bears NE. and SE., clear water about 2½ ft deep, swift current.

9.27 E. bank of river bears NW. and SW. 6 ft. high; enter dense willow and cottonwood brush.

14.00 Leave brush; enter cultivated field, bears NW. and SE.

16.20 Wire fence bears N. and S. Enter cornfield.

21.85 Leave field; enter willow brush, bears NE. and SW.

27.00 Leave brush and enter cultivated field bears NE. and SW.

33.00 Leave field; enter brush bears N. and S.

39.60 Leave brush; enter cultivated field bears N. and S.

46.00 Mexican adobe building bears 6.00 chs. S.

52.00 Leave cultivated field and enter timber and brush, bears N. and S.

60.00 Enter same field bears NW. and SE.

65.00 Mexican adobe house about 3 chs. N. Stable about 2 chs. S.

Difference between measurements of 66.22 chs. by 2 sets of chainmen is 2 lks. position of middle point

By 1st set 66.23 chs.

By 2nd set 66.21 chs.; the mean of which is

66.22 W. bank of San Juan River, bears NE. and SW.; course of river SW.

Stadia measurement across river.

Angle 0°, Rod 7.17 double .1434 ft. + C. 1.15 ft. = 1435.15 ft. = 21.74 chs. + 66.22 chs. = 87.96 chs. = 80.00 chs. + 7.96 chs. on the 100th mile.

80.00 Falls in the river, impracticable to establish the cor. at this point.

Land, valley, nearly level.

Soil, sandy loam, 2nd rate.

Vegetation, cottonwood and willow.

100th mile

S. 89° 59' E. on the tangent to the parallel.

7.50 E. edge of water in river, course NW.

7.96 Stadia point in road bears NW. and SE.

Tape measurement.

00 ft. 8.26 N. 1 link from the tangent.

Set an iron pipe 3 in. dia. 5 ft. long with flanges at the bottom 2 ft. in the ground for 99th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 99.103 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A cottonwood tree 24 ins. dia. bears N. 30° E. 125 lks. dist. marked Colo., 99.103 M., B.T.

A cottonwood tree 24 ins. dia. bears N. 34° W. 162 lks. dist. marked Colo., 99.103 M., B.T.

No tree on other side except those across the river.

Alt. 6200 ft.

Temp. 50°.

The section house at Carracas station on the D. & R. G. W. R. R. about 12.00 chs. NW.
Thence along river bottom through willow brush and cottonwood timber.

31.00 Old log stable on line, Mexican adobe house about 10 chs. SE.
Difference between measurements of 29.37 chs. by 2 sets of chainmen is nothing; the mean is 29.35 + 8.26 chs.

37.61 Stadia measurement from this point,
Angle 0°, Rod 7.06 ft. double =1412 ft. + C. 1.15 ft. = 1413.15 ft. = 21.41 chs. + 37.61 chs. = 59.02 chs.

38.00 Right bank of San Juan River, course SW.

39.40 Left bank on sand bar from NE. to SW.

59.00 Edge of water in river course NW.; thence across bend.

59.02 On left bank of river 8 ft. high bears NE. and SW.
Tape measurement.

60.00 Road bears NE. and SW.

70.29 River bank course N.
Stadia measurement across river,
Angle 0°, Rod 4 ft. single = 400 ft. + C. = 1.15 ft. = 401.15 ft = 6.08 chs. + 70.29 chs. = 76.37 chs.

74.00 On E. bank of river, water flows N. Enter timber and brush.

76.37 Stadia point.
Tape measurement.

6230 ft. 80.00 N. 3 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 100th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 100 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base 2 ft. high around the post.
A cottonwood tree 20 ins. dia. bears N. 41½ E. 42 lks. dist. marked Colo., 100 M., B.T.

A cottonwood tree 6 ins. dia. bears S. 55 20′ E. 86 lks. dist. marked N.M., 100 M., B.T.
A cottonwood tree 10 ins. dia. bears S. 46 W. 61 lks. dist. marked N.M., 100 M., B.T.
A cottonwood tree 13 ins. dia. bears N. 43 40′ W. 141 lks. dist. marked Colo., 100 M., B.T.
About 10 chs. S. to river.
Land, river bottom.
Soil, sandy loam, 2nd rate.
Vegetation, cottonwood, willow and sage brush.
Alt. 6230 ft.
Temp. 65°.

——10th mile——

S. 89° 59′ E. on the tangent to the parallel.

12.80 W. bank of river bears NE. and SW. Water flows SW.
Stadia measurement across river,
Angle 0°, Rod 1.70 single=170 ft.+C.=1.15 ft.=171.15 ft.=2.59 chs.+12.80 chs.=15.39 chs.

15.39 E. bank of river bears NE. and SW. Foot of hill bears NE. and SW. Leave San Juan River valley; ascend.
Tape measurement,

6330 ft. 30.12 Top of spur slope N. 100 ft. above river; descend.

6230 ft. 35.50 Bottom of dry ravine, 100 ft. deep, course from SE. to N.; ascend.

6380 ft. 61.00 Top of rocky spur slope S.; descend.
Difference between measurements of 64.61 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 64.63 chs.
By 2nd set 64.59 chs.; the mean of which is 64.61 chs.+15.39 chs.=

6350 ft. 80.00 Falls in rocky gulch, course S. impracticable to establish the cor. at this point.
Land, rough and broken.

Soil, rocky and sandy, 3rd rate.
Vegetation, sage and oak brush, cedar and pinon timber.

November 15th, 1902.

——102nd mile——

S. 89° 58′ E. on the tangent to the parallel.
Ascend.

6510 ft. 16.00 N. 8 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 101st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 101.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. around the post. Pits impracticable.
A cedar tree 8 ins. dia. bears N. 62° E. 65 lks. dist. marked Colo., 101.2 M., B.T.
A cedar tr 14 ins. dia. bears S. 22½° E. 43 lks. dist. marked N.M., 101.2 M., B.T.
A cedar tree 12 ins. dia. bears S. 71° 40′ W. 89 lks. dist. marked N.M., 101.2 M., B.T.
A pinon tree 7 ins. dia. bears N. 48° 20′ W. 57 lks. dist. marked Colo., 101.2 M., B.T.
This cor. stands on spur sloping S.
Alt. 6510 ft.
Temp. 46°.

25.00 Dry ravine course SW.

6800 ft. 64.00 Top of high ridge bears N. and S. Altitude 6800 ft.
Descend.
Difference between measurements of 64.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 64.03 chs.
By 2nd set 63.97 chs.: the mean of which is 64.00 chs. + 16.00 chs.

6790 ft. 80.00 N. 12 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 102nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M.

on S. and 102 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine 14 ins. dia. bears N. 15 E. 9 lks. dist. marked Colo., 102 M., B.T.
A yellow pine 14 ins. dia., bears S. 29° 20′ E. 34 lks. dist. marked N.M., 102 M., B.T.
A yellow pine 14 ins. dia. bears S. 44° 40′ W. 70 lks. dist. marked N.M., 102 M., B.T.
A yellow pine tree 18 ins. dia. bears N. 52° 20′ W. 47 lks. Dist. marked Colo., 102 M., B.T.
This cor. stands on spur slope N.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, cedar and yellow pine, and oak brush.
Alt. 6790 ft.
Temp. 58°.

103rd mile

S. 89 57′ E. on the tangent to the parallel.
Descend.

	1.50	Dry gulch, course N.; ascend.
6790 ft.	7.00	Top of spur, slope N.; descend.
	55.00	Bottom of dry ravine, 200 ft. deep, course N.; ascend along steep N. slope.

Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is
6750 ft. 80.00 N. 19 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at bottom 2 ft. in the ground for 103rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 103 M. stamped in the center. Raised a mound of stone 5 ft. base and 2 ft. high around the post.
Pits impracticable.

A yellow pine tree 24 ins. dia. bears N. 86° W. 84 lks. dist. marked Colo., 103 M., B.T.
No other trees within limits.
This cor. stands on steep N. slope in oak brush, dense.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Alt. 6750 ft.
Temp. 45°.

——104th mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascend along steep N. slope.

6780 ft.	31.30	Top of sharp spur slope N. Descend along N. slope.
	60.00	Bottom of dry ravine about 200 ft. deep, course NW.; ascend.
	63.00	Bottom of rocky ravine, course S.
	68.00	Top of spur slope N.
	78.60	Dry ravine near head, course N.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
7100 ft.	80.00	N. 27 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 104th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 104 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
A spruce tree 10 ins. dia. bears N. 27° 20′ E. 118 lks. dist. marked Colo., 104 M., B.T.
A spruce tree 10 ins. dia. bears S. 21° E. 13 lks. dist. marked N.M., 104 M., B.T.
A spruce tree 24 ins. dia. bears S. 55° 40′ W. 30 lks. dist. marked N.M., 104 M., B.T.
A pinon tree 5 ins. dia. bears N. 42° W. 106 lks. dist. marked Colo. 104 M., B.T.

Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, sage and oak brush, cedar, pinon, yellow pine, and spruce timber.
Alt. 7100 ft.
Temp. 46°.

November 16th, 19[illegible]

I examine the adjustment of the transit and compare the steel tapes with the standard, find all correct and in adjustment.

——105th mile——

S. 89° 56′ E. on the tangent to the parallel.
Ascend.

7150 ft.	5.91	Top of high spur slope S. Stadia measurement, Angle 5° —, Rod 9.18 double=1836 ft.× 1822.05 ft. +C. 1.14 ft.=1823.19=27.62 chs. +5.91 chs =33.53 chs.
	18.00	Dry ravine about 150 ft. deep, course SW.; ascend.
	33.53	Stadia point. Tape measurement.
7200 ft.	35.00	Top of ridge bears N. and S. Altitude 7200 ft.; descend. Difference between measurements of 46.47 chs. by 2 sets of chainmen is 8 lks. position of middle point By 1st set 46.51 chs. By 2nd set 46.43 chs.; the mean of which is 46.47 chs.+33.35 chs.
	80.00	Falls in deep canon, 150 ft. below top of ridge, impracticable to establish the cor. at this point. Land, rough and broken. Soil, rocky, sand and clay. 3rd rate. Vegetation, oak brush, cedar and pinon, yellow pine and spruce timber.

——106th mile——

S. 89° 55′ E. on the tangent to the parallel.

Descend.

4.00 Bottom of ravine, course N.; ascend.

7400 ft. 24.00 N. 41 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 105th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 105.3 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
A yellow pine tree 10 ins. dia. bears N. 44 E. 76 lks. dist. marked Colo., 105.3 M., B.T.
A yellow pine tree 12 ins. dia. bears S. 20° E. 100 lks. dist. marked N.M., 105.3 M., B.T.
A yellow pine tree 24 ins. dia. bears S. 38 40' W. 89 lks. dist., marked N.M., 105.3 M., B.T.
A yellow pine tree 10 ins. dia. bears N. 5° W. 170 lks. dist. marked Colo., 105.3 M., B.T.
This cor stands on E. slope of high ridge, near top, bears N. and S.
Alt. 7400 ft.
Temp. 55°.
Descend.

38.00 Bottom of dry ravine 300 ft. deep, course N.; ascend.
Difference between measurements of 37.36 chs. by 2 sets of chainmen is 2 lks. position of middle point,
By 1st set 37.37 chs.;
By 2nd set 37.35 chs.; the mean of which is 37.36 chs.+24.00 chs.=

7400 ft. 61.36 On high ridge bears N. and S. A trap dyke about 1 ch. N.
Stadia measurement,
Angle 6°--, Rod 13.00 double=2600 ft.×.9891=2571.66 ft.+C.=1.14 ft.=1572.80 ft. =38.98 chs.+61.36 chs.=100.34 chs.—80.00 chs.=20.34 chs. on 107th mile.

80.00 Falls in rocky canon, 300 ft. deep, course SE. Impracticable to establish the cor. at this point.

Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, oak-brush, cedar and pinon, yellow pine and spruce timber.

107th mile

S. 89° 55′ E. on the tangent to the parallel.
Ascend along S. slope.

7290 ft.	20.34	Stadia point, thence by Tape measurement,
7290 ft.	27.00	N. 53 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 106th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 106.338 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
		Pits impracticable.
		A pinon tree 6 ins. dia. bears S. 16° E. 33 lks. dist. marked N.M., 106.338 M., B.T.
		A pinon tree 7 ins. dia. bears S. 86° 40′ W. 27 lks. dist. marked N.M., 106.338 M., B.T.
		A (X) cross on sandstone wall 6 ft. high bears N. 14° 20′ E. 27 lks. dist. marked Colo., 106.338 M., B.C.
		No other bearing objects within limits.
		Alt. 7290 ft.
		Temp. 52°.
		This cor. stands on rocky spur slope S. Top of rocky butte about 2 chs. NE.; descend.
		Difference between measurements of 36.55 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 36.56 chs.
		By 2nd set 36.54 chs.; the mean of which is 36.55 chs. + 27.00 chs. = 63.55 chs.
6810 ft.	63.55	On top of river bluff bears N. and S.; descend.
		Stadia measurement.
		Angle 18° —, Rod 7.12 double = 1424 ft. × .9045 = 1288.01 ft. + C. = 1.08 ft. = 1289.09 ft. =

19.53 chs., 63.55 chs., 83.08 chs., 80.00 chs.
3.08 chs. on 108th mile.

79.90 Foot of bluff about 400 ft. high, W. edge of Navajo River course N., 70 lks. wide.

80.00 Falls in river, impracticable to establish the cor. at this point.

Land, rough and broken.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.

November 17th, 1902.

I examine the adjustments of the transit and compare the steel tapes with the standard, and find all correct and in adjustment.

108th mile

S. 89° 54' E. on the tangent to the parallel.

0.60 E. bank of Navajo River bears S. and NE.
Enter aspen and willow brush.

6410 ft. 2.00 N. 62 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 107th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 107.025 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
An aspen tree 6 ins. dia. bears N. 50° 50' E. 47 lks. dist. marked Colo., 107.025 M., B.T.
A spruce tree 18 ins. dia. bears S. 27° 05' E. 232 lks. dist. marked N.M., 107.025 M., B.T.
An aspen tree 6 ins. dia. bears N. 73° 40' W. 43 lks. dist. marked Colo., 107.025 M., B.T.
No tree SW. within limits suitable for bearing tree.
A pine post 10 ins. square 2½ ft. above ground firmly set, marks somewhat indistinct, U.R. on N., 37 N. on E., and N.M. on S. bears S. 41° 05' W. 9.13 chs. dist. Supposed to be old SE. cor. Southern Ute Reservation. This is the first cor. or mark of any kind I

		have been able to find indicating the boundary line since leaving the 88th mile of our line, the 243rd mile cor. of the Darling line.
		Alt. 6410 ft.
		Temp. 30°.
	3.00	D. & R. G. W., R.R. tracks-bears N. and S.
	5.00	Foot of bluff bears N. and S.; leave river bottom, ascend steep.
6900 ft.	19.00	Top of bluff bears N. and S. Altitude 6900 ft.
	57.00	Dry bed or ravine course S.; ascend.
		Difference between measurements of 78 chs. by 2 sets of chainmen is 14 lks. position of middle point
		By 1st set 78.07 chs.
		By 2nd set 77.93 chs.; the mean of which is 78 chs. + 2.00 chs.
7110 ft.	80.00	N. 76 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 108th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 108 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A yellow pine tree 10 ins. dia. bears N. 41½ E. 107 lks. dist. marked Colo., 108 M., B.T.
		A yellow pine tree 26 ins. dia. bears S. 17 45′ E. 109 lks. dist. marked N.M., 108 M., B.T.
		A yellow pine tree 24 ins. dia. bears S. 72 45′ W. 229 lks. dist. marked N.M. 108 M., B.T.
		A yellow pine tree 24 ins. dia. bears N. 16 45′ W. 148 lks. dist. marked Colo., 108 M., B.T.
		Land, very rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.
		Alt. 7110 ft.
		Temp. 48°.

109th mile

S. 89 53' E. on the tangent to the parallel. Ascend.

22.40 Top of spur slope NW. about 50 ft. above cor. Descend.

34.50 Bottom of dry ravine, course NW. about 50 ft. below cor. Ascend.

73.00 Top of ridge bears N. and S. about 600 ft. above last cor.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point

By 1st set 20.05 chs.

By 2nd set 79.95 chs.; the mean of which is

7710 ft. 80.00 N. 92 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 109th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 109 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 6 ins. dia. bears N. 3° E. 50 lks. dist. marked Colo., 109 M., B.T.

A pinon tree 12 ins. dia. bears S. 56° W. 58 lks. dist. marked N.M., 109 M., B.T.

No other trees within limits suitable for bearing trees.

Land, rough and broken.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.

Alt. 7710 ft.

Temp. 60°.

This cor. stands on steep rocky S. slope near head of gulch, course SE.

110th mile

S. 89 53' E. on the tangent to the parallel. Descend.

15.00 Bottom of deep dry ravine, course SW. about 300 ft. deep.

35.40 On sharp ridge, 300 ft. high, bears N. and S. Descend by Stadia measurement.
Angle 1 —, Rod 12.70 double =2540 ft. × .9997 =2539.24 ft. + C. 1.15 ft. =2540.39 ft.
38.49 chs. + 35.40 chs. =73.89 chs.

47.00 Deep rocky canon, course SW. about 300 ft. below last ridge.

73.89 Stadia point on sharp spur slope S. Thence by tape measurement,

7610 ft. 80.00 N. 110 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 110th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 110 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A spruce tree 16 ins. dia. bears N. 63½ E. 25 lks. dist. marked Colo., 110 M., B.T.
A yellow pine tree 14 ins. dia. bears S. 41 E. 34 lks. dist. marked N.M., 110 M., B.T.
A spruce tree 14 ins. dia. bears N. 16½ W. 49 lks. dist. marked Colo., 110 M., B.T.
No tree SW. within limits suitable for bearing tree.
Land, rough and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.
Alt. 7610 ft.
Temp. 42°.

November 18th, 1902.

I examine the transit and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

—111th mile—

S. 89° 52' E. on the tangent to the parallel.
Descend.

1.20 Bottom of dry ravine 50 ft. deep, course SW.; ascend steep.

53.00 Top of ridge bears N. and S. about 300 ft. above bottom of ravine; descend.

77.00 Dry gulch, course SE. about 50 ft. below top of ridge; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

7900 ft. 80.00 N. 129 lks. from the tangent, on spur, slope S.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 111th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., and N.M., on S. and 111 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A yellow pine 18 ins. dia. bears N. 35° 20′ E. 23 lks. dist. marked Colo., 111 M., B.T.

A cedar tree 10 ins. dia. bears S. 62° 20′ E. 52 lks. dist. marked N.M., 111 M., B.T.

A yellow pine tree 10 ins. dia. bears S. 51° 20′ W. 111 lks. dist. marked N.M., 111 M., B.T.

A yellow pine tree 14 ins. dia. bears N. 66° W. 88 lks. dist. marked Colo., 111 M., B.T.

Land, rough and broken.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.

Alt. 7900 ft.

Temp. 50°.

——112th mile——

S. 89° 52′ E. on the tangent to the parallel. Descend.

35.00 Bottom of rocky canon about 400 ft. deep, course S.; ascend.

Difference between measurements of 57.37 chs. by 2 sets of chainmen is 4 lks. position of middle point

		By 1st set 57.39 chs.
		By 2nd set 57.35 chs.; the mean of which is
7900 ft.	57.37	On spur slope S.
		Stadia measurement,
		Angle 10° +, Rod 11.76 double=2352 ft.× .9698=2280.97 ft.+C.=1.13 ft.=2282.10 ft. =34.57 chs.+57.37 chs.=91.94 chs.—80.00 chs.=11.94 chs. on 113th mile.
	65.00	Bottom of canon, course SW.
	70.00	On spur slope N.
8090 ft.	80.00	Falls in edge of canon, course nearly W. impracticable to establish the cor. at this place.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.
		113th mile
		S. 89° 51′ E. on the tangent to the parallel.
	11.94	Stadia point.
8400 ft.	16.00	N. 154 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 112th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 112.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
		A yellow pine tree 16 ins. dia. bears N. 46° E. 93 lks. dist. marked Colo., 112.2 M., B.T.
		A yellow pine tree 14 ins. dia. bears S. 77° 20′ W. 212 lks. dist. marked N.M., 112.2 M., B.T.
		A yellow pine tree 14 ins. dia. bears N. 20° W. 110 lks. dist. marked Colo., 112.2 M., B.T.
		No tree SE. within limits.
		Alt. 8400 ft.
		Temp. 54°.
	23.00	Ravine near head, drains SW.
8450 ft.	31.70	On W. bank of box canon, perpendicular walls about 300 ft. deep, course S., heads about 5 chs. N.

Stadia measurement,
Angle 3°—, Rod 5.60 single=560 ft.×.9973 =558.49 ft.+C.=1.15 ft.=559.64 ft.=8.48 chs.+31.70 chs.=40.18 chs.

36.00 Bottom of canon, course S.

40.18 On E. wall of canon, bears N. and S. same elevation as W. wall. Thence by tape measurement,

77.50 Dry ravine, course S.

Difference between measurements of 39.82 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 39.83 chs.
By 2nd set 39.81 chs.; the mean of which is 39.82 chs.+40.18 chs.=

8510 ft. 80.00 N. 172 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 113th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 113 M stamped in the center. Raised mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 16 ins. dia. bears N. 24° 10′ E. 117 lks. dist. marked Colo., 113 M., B.T.
A yellow pine tree 10 ins. dia. bears S. 65° 25′ E. 19 lks. dist. marked N.M., 113 M., B.T.
A yellow pine tree 8 ins. dia. bears S. 15½° W. 86 lks. dist., marked N.M., 113 M., B.T.
A yellow pine tree 18 ins. dia. bears N. 23° 45′ W. 98 lks. dist. marked Colo., 113 M., B.T.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce.
Alt. 8510 ft.
Temp. 46°.

November 19th, 1902

I examine the adjustments of the transit,

compare the steel tapes with the standard and find all correct, and in adjustment.

—— 114th mile——

S. 89° 50' E. on the tangent to the parallel.

10.63 The monument set by S. S. Gannett, 1897, for the inter-section of the 37th parallel with the 107th meridian W. from Greenwich bears N. 1.40 chs. from this tangent and the offset to the parallel at this point is 1.75 chs. N. places this monument 3.15 chs. S of the 37th parallel as determined by my line. This is a monument consisting of a porphyry stone 10 ins. square and 18 ins. high above ground marked,
On N.-SE. cor. S. Ute Res., On E., 107 DEG.
On S. N.M., On W.-107 DEG. W.L.
Some bearing trees marked with nails driven in them forming letters, and at the N. a witness monument, about 6 ft. base, 3½ ft. high. There are 3 blazed lines running through the timber W. from here for more than 5 miles, but after a careful search I failed to find any Darling corners along or near these lines.

12.00 Dry ravine, course S. about 30 ft. deep; ascend.
Archuleta Mountain bears N. and S.

42.00 Dry ravine, course SW.

65.00 Enter grove of aspen timber bears N. and S.
Difference between measurements of 80 chs. by 2 set of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8950 ft. 80.00 N. 196 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 114th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 114 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around

the post. Pits impracticable.
An aspen tree 6 ins. dia. bears S. 57° 20′ E. 16 lks. dist. marked N.M., 114 M., B.T.
An aspen tree 12 ins. dia. bears S. 35° W. 64 lks. dist. marked N.M., 114 M., B.T.
A yellow pine tree 30 ins. dia. bears N. 59° W. 436 lks. dist. marked Colo., 114 M., B.T.
No tree NE. within limits suitable for bearing tree.
Land, mountainous.
Soil, rocky and sandy, 3 rd rate.
Vegetation, yellow pine, spruce and balsam fir, cedar, pinon and aspen; oak and aspen brush.
Alt. 8950 ft.
Temp. 50°.

——115th mile——

S. 89° 50′ E. on the tangent to the parallel.
Ascend,

9000 ft. 11.50 Brow of mountain bears N. and S. Slope W. Altitude 9000 ft. Ascend gradually across top of mountain.
Difference between measurements of 72 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 72.04 chs.
By 2nd set 71.96 chs.; the mean of which is

9050 ft. 72.00 On E. brow of Archuleta Mountain, bears N. and S.
As I find the 80 chs. point will be inaccessible I set the cor at this point,
N. 221 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 115th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 114.9 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine tree 14 ins. dia. bears N. 80° E. 104 lks. dist. marked Colo., 114.9 M., B.T.

A spruce tree 10 ins. dia. bears S. 29° 40′ E. 43 lks. dist. marked N.M., 114.9 M., B.T.
A yellow pine 10 ins. dia. bears S, 15° 30′ W. 96 lks. dist. marked N.M./114.9 M., B.T.
A yellow pine tree 14 ins. dia. bears N. 35° W. 68 lks. dist. marked Colo., 114.9 M., B.T.
Alt. 9050 ft.
Temp. 45°.

77.42 Thence by stadia measurement; descend.
Angle 17°—, Rod 13.00 double=2600 ft.× .9145=2377.70 ft.+C.=1.10 ft.=2378.80 ft.= 36.04 chs.+77.42 chs.=113.46 chs.—80.00 chs. =33.46 chs. on 116th mile.

80.00 Falls on side of cliff wall, inaccessible.
Land, mountainous.
Soil, rocky and sandy, 3rd rate.
Vegetation, yellow pine, balsam fir, cedar and aspen and oak brush.

November 20th, 1902.

I examine the transit, compare the tapes and find all correct and in adjustment.

——116th mile——

S. 89° 49′ E. on the tangent to the parallel.
Descend over rough rocky, broken mountain side.

3.00 Foot of cliffs bears NW. and SE. about 450 ft. below cor.

33.46 Stadia point, thence by tape measurement,
Descend over spurs over SE. slope.
Difference between measurements of 46.54 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 46.57 chs.
By 2nd set 46.51 chs.; the mean of which is 46.54 chs.+33.[illegible] chs.=

8010 ft. 80.00 N. 247 lks. from the tangent,
Set an iron pipe 3 ins. dia 4 ft long with flanges at the bottom 2 ft. in the ground for 116th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M.

on S. and 116 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine tree 48 ins. dia. bears N. 17° E. 128 lks. dist., marked Colo. 118 M., B.T.
A yellow pine tree 30 ins. dia. bears S. 66° 20' E. 146 lks. dist., marked N.M., 116 M., B.T.
A yellow pine tree 24 ins. dia. bears S. 61° W. 78 lks. dist., marked N.M., 116 M., B.T.
No tree NW. within limits suitable for a bearing tree.
Land, mountainous.
Soil, sand and clay, 3rd rate.
Vegetation, oak brush, scattering yellow pine and aspen.
Alt. 8010 ft.
Temp. 50°.

——117th mile——

S. 89° 48' E. on the tangent to the parallel.
Descend over spurs.

7050 ft.	66.00	Foot of mountain bears N. and S. Enter nearly level valley.
	70.20	Wire fence bears N. and S. Enter Gomez's and Archuleta's field.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is
7050 ft.	80.00	N. 275 lks. from the tangent.

Set temporary cor.
Adjusted under instructions dated Sept. 9th, 1903.
See page 423.
Land, mountainous and valley.
Soil, sand and clay loam, 2nd and 3rd rate.
Vegetation, oak brush, scattering yellow pine.
Alt. 7050 ft.
Temp. 40°.

November 21st, 1902.

November 23rd. I carefully adjust the transit in all its parts, compare the steel tapes with the standard and find them of correct length.

November 24th, at 3h 06m A. M. l.m.t. I observe Polaris at Western elongation and mark a point in the line so found on a plug driven in the ground N. of my station.

At 8h A. M. November 24th, 1902, I lay off the azimuth of Polaris 1° 31.1′ to the E. and mark a point in the true meridian thus determined, on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 53′ W. This gives the magnetic variation, 13° 53′ E.

I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

——118th mile——

East on the tangent to the parallel.

3.00 Road from Archuleta's store and grist mill to Edith bears N. and S.

6.00 Our astronomical station No. 3 bears S. 29.68 chs. dist.

The latitude of this station by astronomical observation on the nights of Oct. 5th, 6th and 7th, 1902, is determined to be 36° 59′ 40.88″ or 29.29 chs. South of the 37th parallel. Our line projected from the West is therefore 39 lks. N. of the true parallel, as determined by the astronomical observations.

This being inside the limit allowed by the Hon. Commissioner I erect temporary astronomical monument at this point and continue the line.

See page 424.

Thence across cultivated land.

9.91 Coyote Creek, 15 lks. wide, course S.

15.90 Narrow guage R. R. for hauling logs to the saw mill bears NW. and SE.

36.80 Road bears N. and S.

47.80 Leave cultivated field bears NE. and SW., wire fence,

New Mexico Lumber Co.'s saw mill in center of town of Edith bears S. about 6 chs. dist.

53.00 Small house on line.

54.70 Center of main street in Edith bears NE. and SW.

58.30 R. R. track to saw mill bears NE. and SW.

63.00 River bottom; enter willow brush bears NE. and SW.

75.30 Navajo River 75 lks. wide, clear water, about 2 ft. deep, swift current, course SE.

Difference between measurements of 74 chs. by 2 sets of chainmen is 4 lks. position of middle point.

By 1st set 74.02 chs.

By 2nd set 73.98 chs.; the mean of which is 74.00 chs. + 6.00 chs.=

7050 ft. 80.00 Falls in patch of willow in river bottom, subject to over flow, impracticable to establish the cor. at this point.

Land, nearly level, valley and river bottom.

Soil, sandy loam, 2nd rate.

Vegetation, grass, sage, willow and cottonwood brush.

——119th mile——

S. 89° 57' E. on the tangent to the parallel.

6.00 Leave river bottom bears NE. and SW.

6.80 Ditch flume, course of water SW.

7.00 Road bears NE. and SW.

7100 ft. 8.00 N. 1 link from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 118th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M.

on S. and 118.1 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine tree 12 ins. dia. bears S. 61 E. 251 lks. dist. marked N.M., 118.1 M., B.T.
S. end of bridge across Navajo River bears N. 3° E. about 3 chs. dist.
S. end of ditch flume across the river bears N. 44° 20' E. about 5 chs. dist.
No other trees within limits.
This cor. stands on sharp point of bluff, slope N.
Alt. 7100 ft.
Temp. 30°.
Ascend along N. slope.

13.00 Point of spur slope NE. Descend; enter timber bears N. and S.

18.00 Dry ravine, course N.; ascend

65.00 Top of spur slope N. about 700 ft. above last cor.
Difference between measurements of 72 chs. by 2 sets of chainmen is 10 lks. position of middle point
By 1st set 72.05 chs.
By 2nd set 71.95 chs.; the mean of which is 72.00 chs.+8.00 chs.=

7810 ft. 80.00 N. 3 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 119th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 119 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
This cor. stands on steep N. slope, in oak brush.
No tree within limits suitable for bearing trees.
Land, mountainous.
Soil, rocky, clay and sandy, 3rd rate.
Vegetation, grass, oak and aspen brush, yellow pine, spruce, fir, cedar and pinon.

Alt. 7810 ft.
Temp. 38°.

——120th mile——

S. 89° 59′ E. on the tangent to the parallel. Along steep N. slope, through oak, aspen and pine brush.

17.44 On sharp spur slope N., very steep.
Stadia measurement,
Angle 8° +, Rod 13.00 double=2600 ft.× .9806=2549.56 ft.+C.=1.14 ft.=2550.70 ft.= 38.64 chs.+17.44 chs.=56.08 chs.

39.00 Bottom of dry canon about 600 ft. deep, course NW.

40.00 Wagon road in canon bears NW. and SE.; ascend.

56.08 Stadia point on E. wall of canon, bears NW. and SE. about 600 ft. above bottom, thence by tape measurement.
Ascend gradually.
Difference between measurements of 23.92 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 23.93 chs.
By 2nd set 23.91 chs.; the mean of which is 23.92 chs.+56.08 chs.=

8300 ft. 80.00 N. 7 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 120th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 120 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A yellow pine tree 18 ins. dia. bears N. 40° E. 75 lks. dist. marked Colo., 120 M., B.T.
A yellow pine tree 6 ins. dia. bears S. 17° 40′ E. 70 lks. dist. marked N.M., 120 M., B.T.
A yellow pine tree 16 ins. dia. bears S. 55½° W. 91 lks. dist., marked N.M., 120 M., B.T.
A yellow pine tree 10 ins. dia. bears N. 35°

W. 55 lks. dist. marked Colo., 120 M., B.T.
Land, mountainous.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass, oak and aspen brush, yellow pine, spruce, fir, cedar and aspen timber.
Alt. 7810 ft.
Temp. 38°.

November 24th, 1902.

I examine the adjustment of the transit and compare the steel tapes with the standard, find all correct and in adjustment.

——121st mile——

S. 89° 58′ E. on the tangent to the parallel.

17.76 Top of spur slope NW. about 10 ft. above last station.
Stadia measurement,
Angle 1°,+, Rod 12.98 double=2596 ft.×.9997=2595.22 ft.+C.=1.15 ft.=2596.37 ft.=39.34 chs.+17.76 chs.=57.10 chs.

42.00 Bottom of dry canon about 400 ft. deep, course NW.

57.10 On spur slope S., thence by
Tape measurement,

69.00 Dry ravine, course S.

8400 ft. 75.00 Top of rocky spur slope S. As I find the 80 chs. point will fall in brush on rocky wall of canon, I place the 121st mile cor at this point.
N. 12 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 121st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 120.937 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A yellow pine tree 10 ins. dia. bears N. 65° E. 85 lks. dist. marked Colo., 120.937 M., B. T.

A yellow pine tree 18 ins. dia. bears S. 57 E. 118 lks. dist. marked N.M., 120.937 M., B.T.
A yellow pine tree 16 ins. dia. bears S. 53 W. 118 lks. dist. marked N.M., 120.937 M., B.T.
A yellow pine tree 18 ins. dia. bears N. 40 W. 51 lks. dist. marked Colo., 120.937 M., B.T.

80.00 Falls on rocky side of canon, impracticable to establish the cor. at this point.
Land, mountainous.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, oak and aspen brush, pine, spruce, and balsam fir timber.
Alt. 8400 ft.
Temp. 52°.

——122nd mile——

S. 89° 57' on the tangent to the parallel.

15.00 Bottom of dry canon, about 200 ft. deep, course SW.
Ascend.

52.00 Top of spur slope N.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is

8760 ft. 80.00 N. 19 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 122nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 122 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A yellow pine tree 35 ins. dia. bears N. 46° 20' E. 335 lks. dist. marked Colo., 122 M., B.T.
A yellow pine tree 26 ins. dia. bears S. 52°

W. 204 lks. dist. marked N.M., 122 M., B.T.
No other trees within limits suitable for bearing trees.
Land, mountainous.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, oak and aspen brush, pine, spruce and balsam fir timber.
Alt. 8760 ft.
Temp. 48°.

November 25th, 1902.

Having run the line through to the 4th Astronomical Station, near Ortiz, on our 167th mile and found the falling to be 13.50 chs. North of the 37th parallel as determined by astronomical observations on the nights of October 12th and 13th, 1902, this being 8.90 chs. outside of the limit of 3″ of arc allowed by the Hon. Commissioner in accordance with Special Instructions dated July 7th, 1902, I return to this point and apply a correction of 21 lks. per mile to the South amounting to 9.24 chs. for the 44 miles from the 122nd mile to the 166th mile corners, to bring the line inside of said limit.

——July 12th, 1903——

I examine and adjust the transit, test the stadia wires for correct measurement, compare the steel tapes with the standard and find all correct.

——123rd mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascending gradually along NW. slope, through scattering timber and brush.

8810 ft. 6.00 Top of high bluff, bears NW. and SE.; descend.

8.31 Stadia measurement from this point,
A red peak at S. end of high range bears N. 41° 51′ E. about 15 miles dist.
Sharp peak on Conejos Range bears N. 77°

E. about 25 miles dist.
A sharp timbered conical peak bears S. 62 18′ E. about 8 miles dist.
By Stadia.
Angle 16′, Rod 13.00 double=2600 ft. × .9240 = 2402.40 ft. + C. 1.10 ft. = 2403.50 ft. = 36.41 chs. + 8.31 chs. = 44.72 chs.

8000 ft. 33.00 Foot of bluff about 800 ft. high, bears NW. and SE., thence over rolling brushy land.

44.72 Stadia point, thence by tape measurement. Difference between measurements of 43.59 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 43.62 chs.
By 2nd set 43.56 chs.; the mean of which is 43.59 chs. + 36.41 chs. =

7800 ft. 80.00 N. 27 lks.—Correction 21 lks. S.—N. 6 lks. from tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 123rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 123 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E., and W. of the cor, 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
An aspen tree 6 ins. dia. bears N. 44° 30′ E. 54 lks. dist. marked Colo., 123 M., B.T.
An aspen tree 14 ins. dia. bears S. 3° 10′ E. 53 lks. dist. marked N.M., 123 M., B.T.
An aspen tree 6 ins. dia. bears S. 51° W. 54 lks. dist. marked N.M., 123 M., B.T.
An aspen tree 6 ins. dia. bears N. 8° 40′ W. 78 lks. dist. marked Colo., 123 M., B.T.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scattering pine and aspen timber; oak and aspen brush.
Alt. 7800 ft.
Temp. 82°.

124th mile

S. 89° 56′ E. on the tangent to the parallel. Over rolling hills and scattering timber and brush.

47.15 W. edge of little valley, bears N. and S.

50.20 Trail bears N. and S.

55.00 Leave valley and ascend; bears N and S.

65.00 Top of spur about 75 ft. high, slope N.; descend.

70.00 Enter little valley bears NW. and SE.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

7650 ft. 80.00 N. 37 lks.—Correction 42 lks. S.=S. 5 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 124th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 124 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.

A yellow pine tree 12 ins. dia. bears N. 21½° E. 147 lks. dist. marked Colo., 124 M., B.T.

A yellow pine tree 12 ins. dia. bears S. 9° 35′ W. 403 lks. dist. marked N.M., 124 M., B.T.

A yellow pine tree 12 ins. dia. bears N. 51° 40′ W. 391 lks. dist. marked Colo., 124 M., B.T.

No tree SE. within limits suitable for bearing tree.

Land, rolling.

Soil, sand and clay, 3rd rate.

Vegetation, scattering pine timber; oak and aspen brush.

Much of the timber has been cut off.

Alt. 7650 ft.

Temp. 85°.

——125th mile——

S. 89° 55′ E. on the tangent to the parallel. Over rolling land.

5.00 Bottom of dry gulch, course N.

6.00 Trail bears N. and S. Foot of hill bears N. and S.

Leave small valley; ascend.

15.00 Top of spur about 50 ft. high, slope NW.; descend.

35.00 Foot of hill, enter small valley bears NW. and SW.

36.00 Grade of old logging railroad bears NW. and SW.

43.90 Dry gulch, course N.

48.56 Dry gulch, course NW.

63.00 Foot of hills, leave valley bears NW. and SE.; ascend.

70.00 Top of spur about 50 ft. above valley, slope S.; descend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is

7710 ft. 80.00 N. 49 lks.—Correction 63 lks. S.=S. 14 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 125th mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N.M. on S. and 125 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.

A yellow pine tree 14 ins. dia. bears N. 52° 40′ E. 132 lks. dist. marked Colo., 125 M., B.T.

No other trees within limits.

Land, rolling.

Soil, sand and clay, 3rd rate.

Vegetation, scattering pine timber, oak and aspen brush; grass and sage.

Alt. 7710 ft.
Temp. 85°.

July 12th. 1903.

I examine the adjustments of the transit, compare the steel tapes with the standard, and find everything correct and in adjustment.

——126th mile——

S. 89° 55' E. on the tangent to the parallel. Ascending through brush and scattering timber.

22.00 Top of ridge 75 ft. high, bears SE. and NW.
29.00 In small valley bears NE. and SW.
36.00 Timber road bears SE. and NW.
42.00 Leave valley, ascend, bears SE. and NW.
53.00 On spur slope NW.; about 100 ft. high; descend.
75.00 In broad ravine, course N.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is

8050 ft. 80.00 On SW. slope in dense brush, I advance this corner.
Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, oak and aspen brush, heavy pine timber has been cut off, now scattering.

——127th mile——

S. 89° 54' E. on the tangent to the parallel. Ascend in dense brush.

8200 ft. 3.00 Top of spur slope N.

N. 62 lks.—Correction 84 lks. S.—S. 22 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 126th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M.

on S. and 126.037 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A yellow pine tree 12 ins. dia. bears N. 19° 50' E. 93 lks. dist. marked Colo., 126.037 M., B.T.
A yellow pine tree 20 ins. dia. bears S. 62° E. 115 lks. dist. marked N.M., 126.037 M., B.T.
A yellow pine tree 10 ins. dia. bears S. 34° 10' W. 112 lks. dist. marked N.M., 126.037 M., B.T.
A spruce tree 6 ins. dia. bears N. 74° 10' W. 72 lks. dist. marked Colo., 126.037 M., B.T.
Alt. 8200 ft.
Temp. 62°.
Descend.

20.00 Dry gulch, course N.; ascend.

33.60 Top of spur 100 ft. high, slope NW.

8200 ft. 53.00 Bottom of dry ravine, course NW.; ascend in dense oak brush.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks. position of middle point
By 1st set 80.08 chs.
By 2nd set 79.92 chs.; the mean of which is
8500 ft. 80.00 N. 76 lks.—Correction 105 lks. S.=S. 29 lks. from the tangent.
Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 127th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 127 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 24 ins. dia. bears N. 36° E. 370 lks. dist. marked Colo., 127 M., B.T.
No other trees within limits. This cor stands on a bench about 200 ft. above the bottom of the ravine.

Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, oak and aspen brush, scattering pine timber.
Alt. 8500 ft.
Temp. 60°.

——128th mile——

S. 89° 53′ E. on the tangent to the parallel.
Ascend steep SW. slope in dense oak brush.

28.29 On spur slope N.

51.00 Top of spur slope N. Enter timber, thence along N. slope.

8800 ft. 66.79 Top of bluff bears N. and S. about 300 ft. above last cor.
Descend.
Stadia measurement.
Angle 3°—, 12.98 double=2596 ft.×.9973=2588.99 ft.+C.=1.15 ft.=2590.14 ft.=39.24 chs.+66.79 chs.=106.03 chs.—80.00 chs.=26.03 chs. on 129th mile.

8300 ft. 80.00 Comes in ravine about 500 ft. below top of bluff, stream 3 lks. wide, course N. I advance this cor.
Land, mountainous.
Soil, rocky, 3rd rate.
Vegetation, pine and spruce timber; oak and aspen brush.

——129th mile——

S. 89° 53′ E. on the tangent to the parallel.
Ascend in dense timber and brush.

26.03 Stadia point, thence by tape measurement.

8900 ft. 32.00 N. 99 lks.—Correction 134 lks. S.=S. 35 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 128th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 128.4 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5

ft. base 2 ft. high around the post.
An aspen tree 7 ins. dia. bears N. 46½° E. 29 lks. dist. marked Colo., 128.4 M., B.T.
An aspen tree 6 ins. dia. bears S. 57° E. 97 lks. dist. marked N M., 128.4 M., B.T.
An aspen tree 7 ins. dia. bears N. 18° W. 124 lks. dist. marked Colo., 128.4 M., B.T.
No tree within limits SW., suitable for bearing tree.
Alt. 8900 ft.
Temp. 60°.
Thence along bench; swampy meadow drains N.

50.00 Foot of ridge bears NE. and SW. Leave bench; ascend.
Enter timber bears NE. and SW.

9100 ft. 55.50 Top of ridge bears NE. and SW., 200 ft. above cor.

58.00 Spur slope NE.; descend general course of draw, through spruce and aspen timber.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8950 ft. 80.00 N. 110 lks.—Correction 147 lks. S.=S. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 129th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 129 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 12 ins. dia. bears N. 11° 20' E. 37 lks. dist. marked Colo., 129 M., B.T.
An aspen tree 8 ins. dia. bears S. 64½° E. 21 lks. dist. marked N.M., 129 M., B.T.
A spruce tree 12 ins. dia. bears S. 51½° W. 62 lks. dist. marked N.M., 129 M., B.T.
A spruce tree 18 ins. dia. bears N. 70° 45' W. 41 lks. dist. marked Colo., 129 M., B.T.

Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass: pine, spruce and aspen timber; oak and aspen brush.
Alt. 8950 ft.
Temp. 64 .

——130th mile——

S. 89 .52' E. on the tangent to the parallel.
Descending through timber and brush.

16.00 Dry ravine, course NE.
25.00 Spur slope NE.; descend.
35.00 Bottom of ravine, 100 ft. deep, course NE.: ascend.
49.00 Top of spur 150 ft. above bottom of ravine, slope NE.; descend.
60.00 Ravine, water in holes, course NE.; ascend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 20 lks., position of middle point
By 1st set 80.10 chs.
By 2nd set 79.90 chs.; the mean of which is
9000 ft. 80.00 N. 129 lks.—Correction 168 lks. S.—S. 39 lks. from the tangent.

Set an iron pipe 3 ins. diá. 4 ft. long with flanges at the bottom 2 ft. in the ground for 130th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 130 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

This cor. stands on Continental Divide, which bears N. 65° E. and S. 65° W. for about 30 chs. then about S. 30° W.

A yellow pine tree 24 ins. dia. bears N. 61½ E. 26 lks. dist. marked Colo., 130 M., B.T.
A spruce tree 16 ins. dia. bears S. 57½ E. 125 lks. dist. marked N.M., 130 M., B.T.
A yellow pine tree 12 ins. dia. bears S. 5° W. 137 lks. dist. marked N.M., 130 M., B.T.
A spruce tree 10 ins. dia. bears N. 49° W. 146 lks. dist. marked Colo., 130 M., B.T.

Land, mountainous, rough and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass; pine, spruce and aspen timber; dense oak, aspen, service berry and maple brush.
Alt. 9000 ft.
Temp. 64 .

July 13th. 1903.

I examine the transit both as to levels and collimation, and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

131st mile.—

S. 89° 52′ E. on the tangent to the parallel.
Descending along SE. slope through timber and brush.

33.00 Leave timber and brush bears N. and S.

40.92 Wagon road, from Navajo River to Chama bears NW. and SE.

8850 ft. 54.78 Little Chama River, stream 4 lks. wide, course SE.; thence across little valley.

69.80 Leave valley, bears NE. and SW.; ascend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is

8900 ft. 80.00 N. 150 lks.—Correction 189 lks. S. = 39 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 131st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 131 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 10 ins. dia. bears S. 34½ W. 215 lks. dist. marked N.M., 131 M., B.T.
No other trees within limits.

This corner stands at W. edge of dense oak brush.
Red Peak, Navajo Range, bears N. 28° 43' E. about 8 miles distant.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.
Alt. 8900 ft.
Temp. 50°.

——132nd mile——

S. 89° 51' E. on the tangent to the parallel.
Ascend; enter dense oak brush bears N. and S.

15.60 Top of spur slope SW.; thence along S. slope crossing gulches.

43.00 Top of spur slope S. about 200 ft. above last corner.
Descend in dense aspen brush.

9000 ft. 80.00 Comes in aspen thicket on steep E. slope.
I advance this cor.
Land, mountainous.
Soil, sandy loam, 3rd rate.
Vegetation, grass; scattering pine timber; dense oak and aspen brush.
Alt. 9000 ft.
Temp. 60°.

——133rd mile——

S. 89° 50' E. on the tangent to the parallel.
Descending in dense aspen brush.

10.00 Stream 6 lks. wide, course SW.; ascend.

12.00 On bench about 30 ft. above stream, bears NE. and SW.; leave aspen timber and brush bears NE. and SW.

9200 ft. 16.00 In little open flat.
Difference between measurements of 96.00 chs. by 2 sets of chainmen is 12 lks. position of middle point
By 1st set 96.06 chs.
By 2nd set 95.94 chs.; the mean of which is

96.00 chs. — 80.00 chs. = 16.00 chs. on 133rd mile.

N. 177 lks. — Correction 214 lks. S. — S. 37 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 132nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 132.2 B. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A spruce tree 18 ins. dia. bears S. 80° W. 173 lks. dist. marked N.M., 132.2 M., B.T.

An aspen tree 5 ins. dia. bears S. 47½° W. 182 lks. dist. marked N.M., 132.2 M., B.T.

An aspen tree 5 ins. dia. bears N. 48° W. 167 lks. dist. marked Colo., 132.2 M., B.T.

No tree within limits NE, suitable for bearing tree.

Alt. 9200 ft.

Temp. 50°

Ascend.

19.20 Top of ridge bears NE. and SW.; enter timber bears NE. and SW.

Descend.

33.50 Timber road bears NE. and SW.

37.00 Stream 6 lks. wide in ravine, about 30 ft. deep, course SW.

40.00 On bluff——bears NE. and SW.; ascend, enter timber bears NE. and SW.

70.00 Foot of hill bears NE. and SW. Enter timber bears NE. and SW.

Difference between measurements of 64.00 chs. by 2 sets of chainmen is 4 lks. position of middle point

By 1st set 64.02 chs.

By 2nd set 63.98 chs.; the mean of which is 64.00 chs. + 16.00 chs. =

9250 ft. 80.00 N. 196 lks.—Correction 231 lks. S. — S. 35 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 133rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M., on S. and 133 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

This cor. stands on NW. slope in heavy timber.

A spruce tree 16 ins. dia. bears N. 43½° E. 81 lks. dist. marked Colo., 133 M., B.T.

A spruce tree 14 ins. dia. bears S. 26½° W. 70 lks. dist. marked N.M., 133 M., B.T.

A spruce tree 16 ins. dia. bears N. 80° W. 61 lks. dist. marked Colo., 133 M., B.T.

No tree SE. within limits suitable for bearing tree.

Land, mountainous.

Soil, clay loam, 3rd rate.

Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.

Alt. 9250 ft.

Temp. 65°.

134th mile

S. 89° 50′ E. on the tangent to the parallel. Ascend.

9400 ft.	16.00	Top of ridge bears NE. and SW. about 150 ft. above last corner, much dead and fallen timber. Descend along SE. and S. slopes in dense brush.
	52.00	Bottom of dry ravine, course S.; ascend.
	64.00	Top of bluff bears N. and S.
	66.00	On high spur slope S. As I find the 80.00 chs. point will come in deep canon, subject to snow slides, I place the corner at this point. Difference between measurements of 66.00 chs. by 2 sets of chainmen is 12 lks., position of middle point
		By 1st set 66.06 chs.
		By 2nd set 65.94 chs.; the mean of which is
9670 ft.	66.00	N. 216 lks.—Correction 251 lks. S.—S.35 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 134th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 133.825 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

An aspen tree 8 ins. dia. bears S. 28° E. 29 lks. dist. marked N.M., 133.825 M., B.T.

An aspen tree 6 ins. dia. bears S. 19° W. 15 lks. dist. marked N.M., 133.825 M., B.T.

No trees on other side within limits suitable for bearing trees.

Alt. 9610 ft.

Temp. 70°.

68.00 On edge of high bluff, thence by stadia measurement,

Angle 16 —, Rod 1030 double = 2060 ft. + .9240 = 1903.44 ft. + C. = 1.10 = 1904.54 ft. = 28.85 chs. + 68.00 chs. = 96.85 chs. − 80.00 chs. = 16.85 chs. on 135th mile.

9110 ft. 80.00 Comes in deep ravine subject to snow slides.

No corner set here.

Land, mountainous.

Soil, clay and sand, 3rd rate.

Vegetation, grass; pine and spruce timber, oak, aspen and willow brush.

—135th mile—

S. 89° 49′ E. on the tangent to the parallel.

Ascend in dense timber and brush.

9300 ft. 16.85 Stadia point on spur slope S.; descend.

35.00 Bottom of canon, 150 ft. below top of spur; W. fork of Chama River, 10 lks. wide, course SW.; ascend along N. slope in timber and brush.

70.00 Top spur about 400 ft. above stream, slope N.; descend.

Difference between measurements of 63.15 chs. by 2 sets of chainmen is 10 lks. position of middle point.

By 1st set 63.20 chs.

By 2nd set 63.10 chs.; the mean of which is 63.15 chs. = 16.85 chs. =

9500 ft. 80.00 Comes in gulch, course NW. Stream 3 lks. wide.
Impracticable to establish the cor. at this point.
Land, mountainous, very rough and broken.
Soil, rocky, 3rd rate.
Vegetation, grass; spruce and pine timber; oak and aspen brush.

136th mile

S. 89° 49' E. on the tangent to the parallel.
Ascend in dense timber and brush.

9750 ft. 24.00 N. 255 lks. Correction 279 lks. S. = S. 24 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 135th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 135.3 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This corner stands in little opening on sharp spur, slope S. Trail about 1 ch. South.
A spruce tree 24 ins. dia. bears S. 55° 86 lks. dist. marked N.M., 135.3 M., B.T.
A spruce tree 16 ins. dia. bears S. 85° W. 86 lks. dist. marked N.M., 135.3 M., B.T.
A spruce tree 16 ins. dia. bears N. 15° W. 111 lks. dist. marked Colo., 135.3 M., B.T.
No tree within limits NE. suitable for bearing tree.
Alt. 9750 ft.
Temp. 70°.
Ascend in dense timber.

10000 ft. 56.90 Top of high divide between Chama River and West Fork, Bears N. and S. Elevation 10,000 ft.
(This range is called the Navajo Mountains.)

65.00 Leave timber bears N. and S.
78.50 Enter timber bears NE. and SW.
Difference between measurements by 2 sets of chainmen is 6 lks., position of middle point
By 1st set 56.03 chs.
By 2nd set 55.97 chs.; the mean of which is 56.00 chs.+24.00 chs.=
10000 ft. 80.00 N. 275 lks.—Correction 294 lks. S.—S. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 136th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 136 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A spruce tree 14 ins. dia. bears N. 34° E. 29 lks. dist. marked Colo., 136 M., B.T.
A spruce tree 10 ins. dia. bears S. 65½° E. 26 lks. dist. marked N.M., 136 M., B.T.
A spruce tree 16 ins. dia. bears S. 41½° W. 36 lks. dist. marked N.M., 136 M., B.T.
A spruce tree 12 ins. dia. bears N. 30° W. 45 lks. dist. marked Colo., 136 M., B.T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; spruce, aspen and pine timber; spruce and aspen brush.
Alt. 10000 ft.
Temp. 75°.

July 14th, 1903.

Having carefully adjusted the transit in all its parts at the 136th mile corner, I observe Polaris at Western elongation, at 2h 46m A. M. l.m.t. Nov. 29th, 1902, and mark a point on the line so found on a plug driven in the ground N. of my station.
At 8h A. M. Nov. 29th, I lay off the azimuth of Polaris, 1° 31.1′ to the E. and mark a point in the true meridian thus determined

on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 13° 50′ W.

This gives the magnetic variation 13° 50′ E.

I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.

N. B.—These observations on Polaris for Meridians were taken and the tangent cut out through the timber and brush before the correction and subsequent adjustment of the line was made, hence the difference in date. See report.

July 15th, 1903, at 8h A. M. I examine the transit and compare the steel tapes with the standard, and find all correct.

137th mile.

East on the tangent to the parallel.

4.00 Top of bluff bears N. and S.; descend over benches in timber.

31.00 Bluff bears N. and S.; descend.

40.00 Head of gulch course NE.

75.00 Hollow drains N.; ascend.

Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

9500 ft. 80.00 N. .76 of a lk.—Correction 315 lks. S.—S. 314.24 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 137th mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N.M., on S. and 137 M. stamped in the center. Raised

a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 10 ins. dia. bears N. 55½° E. 72 lks. dist. marked Colo., 137 M., B.T.
An aspen tree 9 ins. dia. bears S. 87½° E. 154 lks. dist. marked N.M., 137 M., B.T.
An aspen tree 12 ins. dia. bears S. 39½° W. 90 lks. dist. marked N.M., 137 M., B.T.
A spruce tree 10 ins. dia. bears N. 32° W. 151 lks. dist. marked Colo., 137 M., B.T.
This cor. stands in little opening on flat spur slope N.
Land, mountainous.
Soil, sandy loam, 3rd rate.
Vegetation, grass; spruce, pine and aspen timber; spruce and aspen brush.
Alt. 9500 ft.
Temp. 75°.

——138th mile——

S. 89° 59' E. on the tangent to the parallel.
Descend over timber and brush.
9275 ft. 67.35 On River Bluff bears NW. and SE.
Descend very steep E. slope in dense aspen and willow brush.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 18 lks. position of middle point.
By 1st set 80.09 chs.
By 2nd set 79.91 chs.; the mean of which is
8850 ft. 80.00 N. 3 lks.—Correction 336 lks. S.=S. 333 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 138th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M., on S. and 138 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the cor.
Pits impracticable.
This cor. stands on a little spur slope SE. about 75 ft. above river bottom.

An aspen tree 5 ins. dia bears N. 32½ E. 53 lks. dist. marked Colo., 138 M., B.T.
An aspen tree 5 ins. dia. bears N. 56½ E. 73 lks. dist. marked N.M., 138 M., B.T.
An aspen tree 5 ins. dia. bears S. 60 W. 18 lks. dist. marked N.M., 138 M., B.T.
An aspen tree 5 ins. dia. bears N. 7 W. 32 lks. dist. marked Colo., 138 M., B.T.
Land, mountainous, rough and broken.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; spruce and pine timber; oak, willow and aspen brush.
Alt. 8850 ft.
Temp. 75°.

——139th mile——

S. 89° 59' E. on the tangent to the parallel.
Descend.

4.00 Foot of bluff about 500 ft. high, bears NW. and SE.; thence across river bottom.

8750 ft. 13.00 Chama River, 75 lks. wide, clear water, 2 ft. deep, course SE.
Altitude 8750 ft.; ascend.

17.00 Top of low bluff, about 50 ft. above water, bears NW. and SE. thence along S. slope.

55.00 On high spur slope S. about 250 ft. above last cor.; descend.

70.00 Bottom of broad ravine, stream 10 lks. wide, course S. about 200 ft. below top of spur.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point.
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is

8900 ft. 80.00 This point comes on S. slope in dense brush.
I advance this cor.
Land, mountainous.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, sage; scattering pine and aspen timber; dense oak and aspen brush.

——140th mile——

S. 89° 58' E. on the tangent to the parallel.

Ascend in dense oak brush.

5.00 Top of spur slope S.; descend.

10.00 Stream 3 lks. wide, course SW.

9500 ft. 39.77 On sharp spur slope SW.

Difference between measurements of 39.77 chs. by 2 sets of chainmen is 12 lks. position of middle point

By 1st set 39.83 chs.

By 2nd set 39.71 chs.; the mean of which is 39.77 chs.

N. 9 lks.—Correction 367 lks. S.—S. 358 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 139th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 139.497 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

An aspen tree 6 ins. dia. bears N. 26° E. 59 lks. dist. marked Colo., 139.497 M., B.T.

An aspen tree 6 ins. dia. bears N. 21½° W. 77 lks. dist. marked Colo., 139.497 M., B.T.

No tree on S. side suitable for bearing trees.

S. face of rock cliff bears S. 77½° E.

First sharp peak on range bears N. 68½° W.

Alt. 9500 ft.

Temp. 75°.

Descend.

42.00 Bottom of ravine 50 ft. deep, stream 2 lks. wide, course SW.; ascend.

54.00 Top of spur slope SW.; descend.

62.00 Bottom of ravine 50 ft. deep, stream 5 lks. wide, course SW.; ascend steep rocky W. slope.

Difference between measurements of 40.23 chs. by 2 sets of chainmen is 10 lks., position of middle point

By 1st set 40.28 chs.

By 2nd set 40.18 chs.; the mean of which is 40.23 chs.+39.77 chs.

9900 ft. 80.00 N. 12 lks.—Correction 378 lks. S.=S. 366 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 140th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 140 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 6 ins. dia. bears N. 68° E. 51 lks. dist. marked Colo., 140 M., B.T.
An aspen tree 5 ins. dia. bears S. 32° E. 53 lks. dist. marked N.M., 140 M., B.T.
An aspen tree 5 ins. dia. bears S. 35° W. 31 lks. dist. marked N.M., 140 M., B.T.
An aspen tree 5 ins. dia. bears N. 37½° W. 73 lks. dist. marked Colo., 140 M., B.T.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; scattering spruce and aspen timber; dense aspen brush.
Alt. 9900 ft.
Temp. 70°.

——141st mile——

S. 89° 57' E. on the tangent to the parallel.
Ascend in aspen timber and brush.
5.00 Top of high spur slope S.; thence descend gradually along S. slope.
Thence by stadia measurement,
Angle 5°+, Rod 10.00 double=2000 ft.× .9924=1984.80 ft.+C.=1.14 ft.=1985.94 ft.=30.09 chs.+5.00 chs.=35.09 chs.
15.00 Small lake about 3 chs. wide extends about 2 chs. N. and 5 chs. S.
25.00 Foot of hill bears NW. and SE.; ascend.
10000 ft. 34.00 Top of spur slope S. Altitude 10000 ft.; descend.
35.09 Stadia point, thence by tape measurement.
55.23 Post by R.R. track near switch at Cresco, marked C. on N., 191 M. on E. and N.M. on S., supposed to be Darling's 191st mile cor.,

restored by Mr. F. M. Johnson in 1900 or 1901, bears S. 40.93 chs. dist. West of this point I failed to find any of the Darling corners I could identify, since leaving his 243rd mile, west of the San Juan River.

Descend along steep S. slope.

9700 ft. 80.00 Comes in bottom of ravine, stream 2 lks. wide, course S. (The stream that supplies the R.R. tanks at Cresco switch about 30 chs. South). Impracticable to establish the corner at this point.

Land, mountainous, rough and broken.

Soil, rocky; clay loam, 3rd rate.

Vegetation, grass; spruce and aspen timber; oak and aspen brush.

142nd mile

S. 89° 57' E. on the tangent to the parallel. Ascend over broken S. slope.

Difference between measurements of 62.31 chs. by 2 sets of chainmen is 14 lks., position of middle point

By 1st set 62.38 chs.

By 2nd set 62.24 chs.; the mean of which is 62.31 chs. + 30.09 chs. = 92.40 chs. — 80.00 chs. = 12.40 chs. on 142nd mile.

9700 ft. 12.40 N. 20 lks.—Correction 402 lks. S.=S. 382 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 141st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 141.155 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A spruce tree 16 ins. dia. bears N. 52° E. 215 lks. dist. marked Colo., 141.155 M., B.T.

A spruce tree 24 ins. dia. bears S. 17½° W. 120 lks. dist. marked N.M., 141.155 M., B.T.

No other trees within limits suitable for bearing trees.

This cor. stands on sharp ridge slope S. about ½ mile North-easterly from the D. & R. G. R.R. tank at Cresco.
Alt. 9700 ft.
Temp. 70°.

July 15th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.
Thence along S. slope through timber and brush, crossing gulches and ridges.

50.00 On spur slope S. about 100 ft. above last cor.

62.70 On high bluff bears N. and S. Offset 4.57 chs. N. to avoid Wolf Creek Canon, thence S. 89° 57' E. parallel to tangent and 4.57 chs. N. of it on offset line.

78.30 and Wagon road, Cumbres to Chama, bears NE. and SW.

Difference between measurements of 67.60 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 67.63 chs.
By 2nd set 67.57 chs.; the mean of which is 67.60 chs.—12.40 chs.

9710 ft. 80.00 Comes in D. & R. G. R.R. cut N. of track.
This offset line is 4.57 chs. N. of the tangent, true place for this cor. N. 27 lks.—Correction 420 lks. S. —S. 393 lks from the tangent —457 lks.—850 lks. N. of the true place for this corner which falls in Wolf Creek Canon and is inaccessible. Therefore I establish a witness corner at this point 850 lks. N. of the true place for the corner.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for witness cor. for 142nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and W.C., 142 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable, in R.R. cut.

An aspen tree 5 ins. dia. bears N. 20° 40′ E. 33 lks. dist. marked Colo., W.C., 142 M., B.T.
An aspen tree 6 ins. dia. bears S. 86° 50′ E. 102 lks. dist. marked W.C., N.M., 142 M., B. T.
A cross on black volcanic rock bears S. 37° 20′ E. 39 lks. dist. Rock 4x6x10 ft. above ground marked N.M., W.C. 142 M., B.C.
An aspen tree 5 ins. dia. bears N. 73° 40′ W. 110 lks. dist. marked W.C., Colo., 142 M., B. T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; spruce, pine and aspen timber; oak and aspen brush.
Alt. 9710 ft.
Temp. 60°.

143rd mile

S. 89° 56′ E. on offset line parallel with the tangent.

0.35 D. & R. G. R.R. track bears NE. and SW.

1.00 Stadia measurement.
Angle 2°+, Rod 9.20 single=920 ft.×.9988=918.90 ft.+C.=1.15 ft.=920.05 ft.=13.94 chs. +1.00 ch.=14.94 chs.

8.00 Bottom of Wolf Creek Canon, about 250 ft. deep, stream 10 lks. wide, course SW.; ascend.

14.94 Stadia point, thence by tape measurement.

25.00 Set back S. 4.57 chs. to the tangent line, thence S. 89° 56′ E. on the tangent to the parallel.
Leave timber, bears NW. and SE.

33.90 Spur slope N.

54.00 Enter timber bears NE. and SW.

75.00 Leave timber bears NE. and SW. Foot of Cumbres or Conejos Range bears NE. and SW.; ascend.
Difference between measurements of 65.06 chs. by 2 sets of chainmen is 8 lks. position of middle point

By 1st set 65.10 chs.
By 2nd set 65.02 chs.; the mean of which is 65.06 chs. + 14.94 chs.

850 ft. 80.00 N. 37 lks. Correction 441 lks. S. = S. 404 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 143rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 143 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A spruce tree 7 ins. dia. bears S. 32° 15′ E. 46 lks. dist. marked N.M., 143 M., B.T.
A spruce tree 7 ins. dia. bears S. 86° 15′ W. 78 lks. dist. marked N.M., 143 M., B.T.
No other trees within limits suitable for bearing trees.
A point of black lava rock bears N. 79° E. about 12 chs. dist.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; spruce and aspen timber; aspen, alder and willow brush.
Alt. 9850 ft.
Temp. 66°.

144th mile

S. 89° 55′ E. on the tangent to the parallel.
Ascend steep rocky W. slope of mountain.
Stadia measurement.
Angle 20′ +, Rod 12.80 single = 1280 ft. + 8830 = 1130.24 ft. + C. = 1.08 ft. = 1131.32 ft. = 17.14 chs.

17.14 Stadia point, thence by tape measurement, over rolling rocky hills.

500 ft. 50.00 Summit of Conejos Range, bears N. and S.
Alt. 10500 ft.
Cumbres station on D. & R. G. R.R. at Cumbres Pass about 1½ miles N.
Descend through scattering timber, with much dead and fallen timber.

Difference between measurements of 62.86 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 62.89 chs.
By 2nd set 62.83 chs.; the mean of which is 62.86 chs. = 17.14 chs.
N. 49 lks.—Correction 462 lks. S. = S. 413 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 144th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 144 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
No trees within limits. This cor. stands on a little flat or basin.
Land, mountainous.
Soil, sand and clay, 3rd rate.
Vegetation, grass; spruce and aspen timber; much dead and fallen timber.
Alt. 10300 ft.
Temp. 70°.

——145th mile——

S. 89° 55' E. on the tangent to the parallel. Descending gradually.

4.00 Stream 5 lks. wide, course NE.; ascend.
8.00 Enter timber bears NW. and SE.
25.00 Top of spur slope N. 150 ft. above cor.; descend.
46.00 Bottom of ravine 100 ft. deep, course NW.; ascend.
60.00 Top of spur slope N.; descend.
77.00 Stream 6 lks. wide, course NE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is
10000 ft. 80.00 N. 62 lks.—Correction 483 lks. S.—421 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 145 mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 145 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A spruce tree 16 ins. dia. bears N. 85 E. 152 lks. dist. marked Colo., 145 M., B.T.

A spruce tree 12 ins. dia. bears S. 58° 45' E. 37 lks. dist. marked N.M., 145 M., B.T.

A spruce tree 10 ins. dia. bears S. 61¼ W. 236 lks. dist. marked N.M., 145 M., B.T.

A spruce tree 10 ins. dia. bears N. 36¼ W. 96 lks. dist. marked Colo., 145 M., B.T.

This cor. stands on E. bank of creek about 30 ft. above the water.

Land, mountainous.

Soil, sand and clay, 3rd rate.

Vegetation, grass, sage; spruce and aspen timber; and brush.

Alt. 10000 ft.

Temp. 70°.

——146th mile——

S. 89° 54' E. on the tangent to the parallel. Ascend in spruce timber.

25.00 Top of spur about 150 ft. high slope N.

38.00 Bottom of gulch, course N.; ascend.

50.00 Top of spur 100 ft. high slope N.; descend.

65.00 Leave timber bears N. and S.; descend E. slope.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is

9700 ft. 80.00 N. 76 lks.—Correction 504 lks. S.—S. 428 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 146th mile cor. A brass cap on top of the

pipe has raised letters Colo. on N., N.M. on S. and 146 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
No trees within limits.
This cor. stands in a little hollow.
Land, mountainous.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, sage, scattering spruce and aspen timber with some dead and fallen timber.
Alt. 9700 ft.
Temp. 65°.

July 16th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct, and in adjustment.

147th mile

S. 89° 53' E. on the tangent to the parallel. Descending gradually across little valley.

8.00 Stream 5 lks. wide, course NE.; ascend.

9750 ft. 16.00 Top of rocky spur slope N. in scattering timber.
Descend along N. slope.

50.00 Foot of hills. Enter valley of the Pinos, bears NW. and SE. Leave timber bears NW. and SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is

9450 ft. 80.00 N. 92 lks. Correction 525 lks. S. S. 433 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 147th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 147 M. stamped in the center. Dug

pits 36x36x18 ins. N., S., and E. of the cor. 6 ft. dist. The place for pit on W. side, a shallow pond, pit impracticable. Raised a mound of earth 5 ft. base 2 ft. high around the post.

A cliff of rock bears N. 25° E. about 1 mile dist.

A sharp point of rock bears N. 51° 05' E. about 1 mile dist.

This cor. stands on creek bottom about 6 chs. S. of Rio Los Pinos

Land, mountainous.

Soil, sandy, and clay loam, 2nd rate.

Vegetation, grass, sage, scattering spruce and aspen

Alt. 9450 ft

Temp. 68°

148th mile

S. 89° 53' E. on the tangent to the parallel. Along creek bottom.

	60.00	Stream 5 lks. wide, course NE.
	70.00	Foot of bluff bears NE. and SW.; ascend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.; the mean of which is
9500 ft.	80.00	N. 110 lks.—Correction 546 lks. S.—S. 436 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 148th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 148 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limits.
		This cor. stands on steep rocky NW. slope.
		Land, mostly valley.
		Soil, sandy and rocky, 2nd rate.

Vegetation, grass and sage.
Alt. 9500 ft.
Temp. 70°.

149th mile

S. 89° 52' E. on the tangent to the parallel. Ascend over steep broken rock.
Stadia measurement.
Angle 18° +, Rod 11.50 single = 1150 ft. × .9045 = 1040.18 ft. + C. = 1.09 ft. = 1041.27 ft. = 15.77 chs.

15.77 Stadia point on top of rock cliffs, about 350 ft. above creek bears NE. and SW. Thence by tape measurement along N. slope. Enter scattering timber bears NE. and SW

68.00 Top of spur, slope N.
Difference between measurements of 64.23 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 64.25 chs.
By 2nd set 64.21 chs.; the mean of which is 64.23 chs. + 15.77 chs.

9840 ft. 80.00 N. 129 lks. Correction 567 lks. S. 8. 438 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 149th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 149 M. stamped in the center. Raised a mound of stone 3 ft. base 2 ft. high around the post.
Pits impracticable.
An aspen tree 6 ins. dia. bears N. 72½° E. 116 lks. dist. marked Colo., 149 M., B.T.
An aspen tree 10 ins. dia. bears S. 14° E. 79 lks. dist. marked N.M., 149 M., B.T.
An aspen tree 5 ins. dia. bears S. 62° W. 80 lks. dist. marked N.M., 149 M., B.T.
An aspen tree 5 ins. dia. bears N. 51¼° W. 24 lks. dist. marked Colo., 149 M., B.T.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate

Vegetation, grass, sage, aspen and scatter
ing spruce timber; aspen brush.
Alt. 9810 ft.
Temp. 70

150th mile

S. 89 52' E. on the tangent to the paralle.
Ascend gradually in aspen timber.

3.50 Top of hill bears NW. and SE.; descend.
30.00 Leave timber bears NW. and SE.
55.00 On bluff bears NW. and SE.; descend.
9200 ft. 64.00 Rio Los Pinos, 60 lks. wide, course SE. Alt 9200 ft.
Ascend along S. slope.
75.00 Brook 3 lks. wide, course SW.; ascend steep
80.00 Comes on very steep W. slope in sliding rock.
Impracticable to establish permanent cor. at this point.
Land, mountainous.
Soil, rocky, 3rd rate.
Vegetation, grass, sage, scattering aspen timber; aspen brush.

151st mile

S. 89 51' E. on the tangent to the parallel.
5.70 D. & R. G. R.R. track bears N. and SE.
6.00 Perpendicular wall rock cutting about 30 ft. high.
Difference betwee measurements of 87.00 chs. by 2 sets of chainmen is 16 lks. position of middle point
By 1st set 87.08 chs.
By 2nd set 86.92 chs.; the mean of which is 87.00 chs. — 70.00 chs. = 7.00 chs. on 151st mile.
9520 ft. 7.00 N. 152 lks. Correction 590 lks. S. = S. 438 lks. from the tangent,
Set an iron post 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 150th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on

		S. and 150.087 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A spruce tree 10 ins. dia. bears S. 11½ E. 83 lks. dist. marked 150.087 M., N. M., B.T.
		A spruce tree 18 ins. dia. bears N. 32° W. 55 lks. dist. marked Colo. 150.087 M., B.T.
		No other trees within limits suitable for bearing trees.
		The upper end of Toltec Gorge about 1 mile SE.
		Darling's 6th Astronomical station bears S. 1 W. 38.80 chs. dist. I destroyed this cor. and succeeded in finding and destroying all his corners from this point W. to the 191st mile cor. previously mentioned, except his 182nd, 189th and 190th mile corners, which I failed to find.
		Thence ascend through dense aspen brush.
10000 ft.	70.00	On top of high spur slope S. Alt. 10000 ft. descend.
		Difference between measurements of 73.00 chs. by 2 sets of chainmen is 12 lks., position of middle point
		By 1st set 73.06 chs.
		By 2nd set 72.94 chs.; the mean of which is 73.00 chs. + 7.00 chs.
9950 ft.	80.00	N. 172 lks.—Correction 609 lks. S.—S. 437 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 151st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 151 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		An aspen tree 8 ins. dia. bears S. 11° E. 200 lks. dist. marked N.M., 151 M., B.T.
		An aspen tree 10 ins. dia. bears S. 15° W. 290 lks. dist. marked N.M., 151 M., B.T.
		No trees within limits on other side.

Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; aspen, scattering spruce timber; dense aspen brush.
Alt. 9950 ft.
Temp. 70°.

July 17th, 1903.

On morning of Dec. 3rd, 1902, at 2h 31m A. M. l.m.t., having carefully adjusted the transit in all its parts at the 151st mile cor. I observe Polaris at Western elongation, and mark a point on the line so found on a plug driven in the ground N. of my station.
At 7h 50m A. M. Dec. 3rd, I lay off the azimuth of Polaris 1° 31.1′ to the East and mark a point in the true meridian on a plug driven in the ground N. of my station.
The magnetic bearing of said meridian is N. 13° 45′ W.
This gives the magnetic variation 13° 45′ E.
I now lay off an angle 90° from the meridian, from the N. to the E. for the tangent to the parallel.
In these observations and the subsequent turning of angles the mean of four sights was used with telescope reversed at each sight.

July 18th, 1903.—I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

——152nd mile——

East on the tangent to the parallel.
Descend through dense aspen brush.
71.00 D. & R. G. R.R. bears N. and S.; about 10 chs. N. to Toltec section house.
9350 ft. 80.00 Comes in dense brush in deep ravine, about 600 ft. below last corner. I advance this corner.
Land, mountainous.

Soil, rocky, clay and sand, 3rd rate.
Vegetation, grass; aspen timber; aspen and oak brush.

153rd mile

S. 89 59′ E. on the tangent to the parallel.
Descend in dense brush.

1.00 Stream 5 lks. wide, course SE.; ascend.
Difference between measurements of 96.00 chs. by 2 sets of chainmen is 20 lks., position of middle point
By 1st set 96.10 chs.
By 2nd set 95.90 chs.; the mean of which is 96.00 chs.—80.00 chs.=16 chs. on 153rd mile.

9450 ft. 16.00 N. 1 lk.—Correction 634 lks. S.=S. 633 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 152nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N.M., on S. and 152.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This. cor. stands in S. side of D. & R. G. R.R cut.
A spruce 5 ins. dia. bears N. 43 50′ W. 160 lks. dist. marked Colo., 152 M., B.T.
No other trees within limits suitable for bearing trees.

16.25 Center of D. & R. G. R.R. track bears NW. and SE.; ascend in dense brush and scattering timber.

10000 ft. 36.00 Top of high bluff bears NW. and SE. Elevation 10000 ft.
Enter aspen timber; descend gradually.
Difference between measuremgnts of 64.00 chs. by 2 sets of chainmen is 14 lks., position of middle point
By 1st set 64.07 chs.
By 2nd set 63.93 chs.; the mean of which is 64.00 chs.+16.00 chs.=

9920 ft. 80.00 N. 3 lks.—Correction 631 lks. S.—S. 648 lks. from the tangent.
Set an iron pipe 3 ins. dia, 4 ft. long with flanges at the bottom 2 ft. in the ground for 153rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 153 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
An aspen tree 6 ins. dia. bears 34½ E. 48 lks. dist. marked Colo., 153 M., B.T.
An aspen tree 6 ins. dia. bears S. 72 E. 68 lks. dist. marked N.M., 153 M., B.T.
An aspen tree 6 ins. dia. bears S. 24 W. 180 lks. dist. marked N.M., 153 M., B.T.
An aspen tree 5 ins. dia. bears N. 73 W. 95 lks. dist. marked Colo., 153 M., B.T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; aspen, scattering spruce timber; aspen brush.
Alt. 9920 ft.
Temp. 79°

——154th mile——

S. 89° 59' E. on the tangent to the parallel.
Descending gradually through aspen timber.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
9850 ft. 80.00 N. 7 lks.—Correction 672 lks. S.—S. 665 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 154th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 154 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.
This cor. stands among dead aspen poles, on gentle NW. slope.
An aspen tree 6 ins. dia. bears North 15 lks. dist. marked Colo., 154 M., B.T.
An aspen tree 6 ins. dia. bears S. 54° 20′ W. 153 lks. dist. marked N.M., 154 M., B.T.
No other tree within limit suitable for bearing tree.
Land, sloping gently to the N. and NW.
Soil, clay loam, 3rd rate.
Vegetation, aspen timber and brush.
Alt. 9850 ft.
Temp. 75

—155th mile—

S. 89° 58′ E. on the tangent to the parallel.
Descending along N. slope in timber and brush.

73.00 Bottom of ravine, course N.

77.00 On ridge bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is

9650 ft. 80.00 N. 12 lks.—Correction 693 lks. S.—S. 681 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 155th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 155 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
A yellow pine tree 24 ins. dia. bears N. 15° E. 161 lks. dist. marked Colo., 155 M., B.T.
A spruce tree 24 ins. dia. bears S. 23½° W. 291 lks. dist. marked N.M., 155 M., B.T.
No other trees within limit suitable for bearing trees.

Land, mountainous.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass; aspen, scattering pine and spruce timber; aspen brush.
Alt. 9650 ft.
Temp. 75 .

——156th mile——

S. 89° 57′ E. on the tangent to the parallel.
Descend over rolling hills, along N. slope through timber and brush.

9540 ft. 74.00 Top of ridge bears NE. and SW.; descend, leave timber, bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is

9440 ft. 80.00 N. 19 lks.—Correction 714 lks. S.=S. 695 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 156th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 156 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands on open NE. slope near head of little gulch that runs SE.
A yellow pine tree 18 ins. dia. bears N. 64° 35′ E. 167 lks. dist. marked Colo., 156 M., B.T.
A yellow pine tree 18 ins. dia bears S. 35° E. 312 lks. dist. marked N.M., 156 M., B.T.
No other trees within limits.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; spruce and pine and aspen timber; oak and aspen brush.
Alt. 9440 ft.
Temp. 77 .

I examine, and carefully adjust the transit, compare the steel tapes with the standard and find them of correct length.

157th mile

S. 89° 57' E. on the tangent to the parallel. Descend.

8.00 Bottom of ravine about 75 ft. below cor. course NE.; ascend over N. slopes.

40.00 Top of spur, slope N. about 50 ft. high.

9760 ft. 72.00 Bottom of ravine, stream 2 lks. wide, course N.; ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is

9210 ft. 80.00 N. 27 lks.—Correction 735 lks. S.—S. 708 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 157th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 157 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

This cor. stands in a little gap or saddle, on the top of a ridge that bears NE. and SW.

A pine tree 18 ins. dia. bears N. 44½° E. 74 lks. dist. marked Coyo., 157 M., B.T.

A pine tree 12 ins. dia. bears S. 10½° E. 173 lks. dist. marked N.M., 157 M., B.T.

No other trees within limits.

Land, mountainous.

Soil, rocky, 3rd rate.

Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.

Alt. 9210 ft.

Temp. 65°.

——158th mile——

S. 89° 56' E. on the tangent to the parallel. Descending through brush and scattering timber.

23.00 Bottom of dry ravine, 50 ft. deep course NE.; ascend.

30.00 Top of spur slope NE.; descend.

34.00 Bottom of ravine 50 ft. deep, course NE.

50.00 Top of spur, about 50 ft. above gulch, slope NE.

72.00 Bottom of ravine, course N., water in head of it about ½ mile S. of line; ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which

9130 ft. 80.00 N. 37 lks.—Correction 756 lks. S.=S. 719 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 158th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 158 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

This cor. stands on W. slope about 15 ft. above bottom of ravine.

A yellow pine tree 18 ins. dia. bears N. 17° E. 198 lks. dist. marked Colo., 158 M., B.T.

A yellow pine tree 18 ins. dia. bears S. 35° E. 384 lks. dist. marked N.M., 158 M., B.T.

A yellow pine tree 18 ins. dia. bears S. 71½° W. 73 lks. dist. marked N.M., 158 M., B.T.

A yellow pine tree 18 ins. dia. bears N. 32° W. 198 lks. dist. marked Colo., 158 M., B.T.

Land, mountainous.

Soil, sand and clay, rocky, 3rd rate.

Vegetation, grass; scattering pine, spruce and aspen timber; oak and aspen brush.

Alt. 9200 ft.
Temp. 75°.

——159th mile——

S. 89° 55′ E. on the tangent to the parallel; ascend.

9350 ft. 24.00 Top of bluff bears NW. and SE. Lava rim about 220 ft. above the cor.
Thence across high mesa, scattering timber.

9350 ft. 60.00 Top of wall, lava rim bears NW. and SE.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks. position of middle point
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is

9200 ft. 80.00 N. 49 lks.—Correction 777 lks. S.—S. 728 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the botto m2 ft. in the ground for 159th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 159 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 16 ins. dia. bears S. 4° 10′ E. 187 lks. dist. marked N.M., 159 M., B.T,
A yellow pine tree 16 ins. dia. bears N. 0° 45′ W. 353 lks. dist. marked Colo., 159 M., B.T.
No other trees within limits suitable for bearing trees.
Land, mountainous.
Soil, sand and clay, rocky, 3rd rate.
Vegetation, grass; scattering pine, spruce and aspen timber; oak and aspen brush.
Alt. 9200 ft.
Temp. 75°.

——160th mile——

S. 89° 55′ E. on the tangent to the parallel. Along N. slope in dense brush and scattering timber.

9250 ft. 50.00 Top of wall lava rim bears NE. and SW. about 50 ft. above last corner, thence across lava mesa.

70.40 D. & R. G. R.R. track bears NE. and SW. about ¼ mile N. of Big Horn section house.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks. position of middle point

By 1st set 80.08 chs.

By 2nd set 79.92 chs.; the mean of which is

9200 ft. 80.00 N. 62 lks.—Correction 798 lks. S.=S. 736 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 160th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 160 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

No trees within limits.

This corner stands on lava mesa, near center of parquette made by D. & R. G. R.R. to gain grade.

Land, broken and rock.

Soil, clay and volcanic ash, 3rd rate.

Vegetation, soap-weed; scattering pine, spruce and aspen timber; and aspen brush.

Alt. 9200 ft.

Temp. 80°.

——161st mile——

S. 89° 54′ E. on the tangent to the parallel. Descending gradually over lava mesa.

10.08 Center of D. & R. G. R.R. track, bears NE. and SW.

35.00 Leave scattering timber, bears N. and S.

Difference between measurements of 80.00

chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is
9050 ft. 80.00 N. 76 lks.—Correction 819 lks. S.—S. 743 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 161st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 161 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
W. edge of timber on peak bears N. 22½° W. about 5 miles dist.
Sharp timbered peak bears E. 7° 20′ W. about 2 miles dist.
Top of Ute Peak bears S. 78½° E. about 25 miles dist.
Land, volcanic mesa.
Soil, sand, clay, volcanic ash, 4th rate.
Vegetation, soap-weed; scattering pine and pinon.
Alt. 9050 ft.
Temp. 75°.

July 19th, 1903.

I examine the instrument and compare the steel tapes with the standard, find all correct and in adjustment.

——162nd mile——

S. 89° 53′ E. on the tangent to the parallel.
Descend gradually over mesa.
9000 ft. 22.00 Top of lava wall, or rim, bears NE. and SW.
Leave mesa; descend, enter scattering pinon and cedar bears NE. and SW.
8660 ft. 48.00 Foot of slope dry gulch, course NE. and about 300 ft. below top of bluff; ascend.
49.00 Darling's 170th mile cor. bears S. 32.90 chs. dist., a lava stone 15x10x8 ins. set in a pile

of rock, marked C. on N., 170 on E., N.M. on S. and .68 on W. I destroyed this corner.
Ran West from this point.
80.00 chs.—Darling's 171st mile cor. 10 lks. S. A lava stone 14x10x7 ins. in a pile of stone, marked C. on N., 171 on E., N.M. on S. and .68 on W. I destroyed this cor.
Ran West.
80.00 chs.—Failed to find Darling's 172nd mile cor. and failed to find any more of the Darling corners till I reach his 6th Astronomical Station, on his 182nd mile, W. of Toltec Gorge, previously described. I now run East from the site of Darling's 170th mile corner and make search at each mile, but fail to find any corners, till I reach his 165th mile cor., near our Astronomical Station No. 4,—a lava stone 14x10x8 ins. marks illegible.

57.60 Wagon road, Antonito to Big Horn Station, bears NE. and SW.

8650 ft. 60.00 Top of hill bears NE. and SW.
Thence over gently rolling hills.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks. position of middle point
By 1st set 80.08 chs.
By 2nd set 79.92 chs.; the mean of which is

8650 ft. 80.00 N. 92 lks.—Correction 840 S.—S. 748 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 162nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 162 M. Stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
Land, mesa and rolling.
Soil, sandy and volcanic ash, 3rd rate.
Vegetation, grass, sage, soapweed; scattering cedar and pinon.

Alt. 8650 ft.
Temp. 65°.

——163rd mile——

S. 89° 53′ E. on the tangent to the parallel.
Over gently rolling land.

57.90 Center of D. & R. G. R.R. track bears N. 51° E. for about 20 chs., then curves to N. and S. 51° W. about 6 chs. then curves to the S.
Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks., position of middle point
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is

8420 ft. 80.00 N. 110 lks.—Correction 861 lks. S.—S. 751 lks. from the tangent,
Set temporary cor. See page 419.
Land, rolling.
Soil, sandy, 3rd rate.
Vegetation, grass, scrub pinon, both N. and S. of this line.
Alt. 8420 ft.
Temp. 70°.

——164th mile——

S. 89° 52′ E. on the tangent to the parallel.
Descending gradually across little valley, that bears NE. and SW.

8400 ft. 64.00 Foot of bluff that bears NE. and SW.
Leave valley, ascend.

80.00 Comes on W. slope of bluff.
I advance this cor.
Land, mostly valley.
Soil, sandy, 3rd rate.
Vegetation, grass, sage and scattering pinon.

——165th mile——

S. 89° 52′ E. on the tangent to the parallel.
Ascend.

4.00 Brow of bluffs bears NE. and SW.
Ascend gradually.

		Difference between measurements of 88.00 chs. by 2 sets of chainmen is 10 lks., position of middle point
		By 1st set 88.05 chs.,
		By 2nd set 87.95 chs.; the mean of which is 88.00 chs.,—80.00 chs. =8.00 chs. on the 165th mile.
8500 ft.	8.00	N. 131 lks.—Correction, 884 lks. S.=S. 753 lks. from the tangent.
		Set temporary cor.
		Alt. 8500 ft.
		Temp. 75°.
		Thence across lava mesa.
8500 ft.	26.00	E. edge of mesa bears NE. and SW.
		Descend.
	44.00	Foot of bluff about 250 ft. high bears NE. and SW.
	44.23	Wagon road bears N. 37° E. and S. 37° W.
		Descend gradually.
	44.50	Fence bears NE. and SW.
	47.15	Irrigating ditch, course NE.
		Enter cultivated field bears NE. and SW.
		Difference between measurements of 72.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
		By 1st set 72.03 chs.;
		By 2nd set 71.97 chs.; the mean of which is 72.00 chs.+8.00 chs.=
8200 ft.	80.00	N. 150 lks.—Correction 903 lks. S.= S.753 lks. from the tangent.
		Set temporary cor.
		This cor. stands in a cultivated field.
		Land, high table and valley.
		Soil, 2nd and 3rd rate.
		Vegetation, grass, sage and wheat, alfalfa and pease.
		Alt. 8200 ft.
		Temp. 80°.

——166th mile——

S. 89° 51′ E. on the tangent to the parallel.
Across bottom land, through growing crops.

	17.60	Irrigating ditch 10 lks. wide, course NE.
	40.00	A good house about 5 chs. N.
	65.00	Center of main street in Ortiz bears N. 25° W. and S. 25° E. about 10 chs. each way and jogs off to the E. at each end.
	67.00	SW. cor. of Garcia's house, the largest house in Ortiz.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
8180 ft.	80.00	N. 172 lks.—Correction 924 lks. S.—S. 752 lks. from the tangent,
		Set temporary cor.
		This cor. stands in cultivated field.
		The point for this cor. was determined from the astronomical observations, and was located April 21st, 1903.
		Land, creek bottom.
		Land, gravelly loam, 2nd rate.
		Vegetation, cultivated crops, wheat, oats, corn, alfalfa pease and potatoes.
		Alt. 8180 ft.
		Temp. 80°.

July 20th, 1903.

On April 20th, I assembled the Surveying Corps at Antonito, Colorado.

April 21st proceed to Ortiz to our 4th Astronomical Station, where we left off work last December.

From the Astronomical observations made at this station on the nights of October 12, and 13th, 1902, I locate the 37th parallel of North Latitude and also locate a point on the boundary line within the limit of 3″ of arc allowed by the Hon. Commissioner, for the 166th mile cor.

I find the snow is still too deep on the Conejos and Navajo Ranges to admit making the required correction of the line from the

122nd cor. to this point.
Therefore, that portion of the line was left till later in the season, as shown by the dates on the foregoing field notes.
April 22nd, 1903 at 5h 30m A. M. l.m.t. at the point for the 166th mile cor. I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground N. of my station.
At 6h 50m A. M. I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground north of my station.
The magnetic bearing of the meridian is N. 13° 44′ W. This gives the magnetic variation 14° 44′ E.
I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

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——167th mile——

East on the tangent to the parallel.
Along creek bottom and over cultivated land.

33.27 W. edge of San Antonio Creek, 1 ch. wide, clear water, 2 ft. deep, course NE.

34.87 E. edge of creek bears NE. and SW.; bank 2½ ft. high, fringe of willow brush along creek.

44.00 Point of lava hill from SW.

46.00 Mexican adobe about 1 ch. S.

51.90 Our Astronomical station bears S. 26.90 chs. dist.
The latitude of this station was found to be 36° 59′ 45.22″—22.64 chs. S. of true parallel. Out line is, therefore 4.26 chs. N. of the true parallel as determined by astronomical observations, but within the limits of 3″ of arc allowed by the Hon. Commissioner.

As this point comes in a cultivated field I advance the astronomical monument to the E. edge of it.

(See page 421.)

8180 ft. 60.80 N. ½ lk. from the tangent.
Set temporary astronomical monument.
Leave cultivated land, bears N. and S.; ascend.

8260 ft. 64.11 Top of bluff on rimrock of black lava about 75 ft. high. bears NE. and SW. Thence across lava mesa.

77.90 Wagon road, bears N. and S.
Difference between measurements of 80.00 chs. 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8260 ft. 80.00 N. .76 of a link from the tangent,
Set temporary cor.
Land, mesa and valley.
Soil, gravelly loam and volcanic ash, 2nd and 4th rate.
Vegetation, growing crops in valley, some grass and weeds on mesa.
Alt. 8260 ft.
Temp. 52°.

——168th mile——

S. 89° 59′ E. on the tangent to the parallel.
Over malpais or volcanic rock and sand.

51.50 Darling's 164th mile cor. bears S. 29.00 chs. dist.
A lava stone 16x10x8 ins. No mound of other witness.
I destroy the marks.
The Darling corners were found and destroyed from this point eastward to the foot of the Culebra Range.
They consisted of lava stones from 16 to 24 ins. in length, other dimensions much the same as the 164th mile cor.
They were nearly all lying on the ground,

not witnessed in any way. They were generally well and distinctly marked.

63.85 Wagon road, bears N. and S.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point,

By 1st set 80.01 chs.

By 2nd set 79.99 chs.; the mean of which is

8275 ft. 80.00 N. 3 lks. from the tangent,

Set temporary cor.

Land, lava mesa, gently rolling.

Soil, sand and volcanic ash, 4th rate.

Vegetation, a little grass and weeds, practically a desert.

Alt. 8275 ft.

Temp. 65°.

——169th mile——

S. 89° 59′ E. on the tangent to the parallel.

Over volcanic mesa.

27.81 Center of D. & R. G. R.R. track bears N. and S. runs from Antonito to Santa Fe.

70.00 Wagon road bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is

8250 ft. 80.00 N. 7 lks. from the tangent,

Set temporary cor.

Land, gently rolling, volcanic mesa.

Soil, rocky and sandy, 4th rate.

Vegetation, scanty, weeds and greasewood.

Alt. 8250 ft.

Temp. 62°.

——170th mile——

S. 89° 58′ E. on the tangent to the parallel.

68.00 Hollow drains NE., 30 ft. deep; ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point

By 1st set 80.02 chs.

By 2nd set 79.98 chs.; the mean of which is

8200 ft. 80.00 N. 12 lks. from the tangent,
Set temporary corner.
Land, volcanic mesa.
Soil, sandy and rocky, 4th rate.
Vegetation, scanty, weeds and greasewood.
Alt. 8200 ft.
Temp. 62°.

——171st mile——

S. 89° 57′ E. on the tangent to the parallel.
Over volcanic mesa.

20.70 Wagon road, bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs.; the mean of which is

8120 ft. 80.00 N. 19 lks. from the tangent,
Set temporary cor.
Land, mesa.
Soil, sandy and rocky, 4th rate.
Vegetation, weeds and greasewood.
Alt. 8120 ft.
Temp. 66°.

——172nd mile——

S. 89° 57′ E. on the tangent to the parallel.
Over mesa.

20.60 Wagon road bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8100 ft. 80.00 N. 27 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 172nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M., on S. and 172 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.

No bearing.
Land, nearly level, volcanic mesa.
Vegetation, weeds and greasewood.
Alt. 8100 ft.
Temp. 70°.

——173rd mile——

S. 89° 56′ E. on the tangent to the parallel.
Over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

8057 ft. 80.00 N. 37 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 18 ins. in the ground to bed rock for 173rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 173 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
Low peak S. end of pinon hills bears N. 5° W. about 2 miles dist.
Top of San Antonio Mountain bears S. 31° W.
Land, nearly level, volcanic mesa.
Soil, rocky and sandy, 4th rate.
Vegetation, weeds and greasewood.
Alt. 8075 ft.
Temp. 70°.

——174th mile——

S. 89° 55′ E. on the tangent to the parallel.
Descend over gently rolling land.
2.00 Bottom of hollow 15 ft. deep, drains NE.; ascend.
28.00 Top of ridge about 30 ft. high, bears NE. and SW.
Descend gradually.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

8100 ft. 80.00 N. 49 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 174th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 174 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
Top of Ute Peak bears S. 70° 20′ E.
Top of San Antonio Mountain bears S. 35° 10′ W.
Land, gently rolling mesa.
Soil, rocky and sandy, 4th rate.
Vegetation, weeds and greasewood.
Alt. 8100 ft.
Temp. 68°.

—175th mile—

S. 89° 55′ E. on the tangent to the parallel.
Over gently rolling mesa.

42.40 Wagon road, bears NW. and SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

7980 ft. 80.00 N. 62 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 18 ins. in the ground to bed rock for 175th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 175 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

Top of San Antonio Mountain bears S. 38 50′ W.
Top of Ute Peak bears S. 68 45′ E.
Land, nearly level mesa.
Soil, rocky and sandy, 4th rate.
Vegetation, scanty weeds and greasewood.
Alt. 7980 ft.
Temp. 68°.

April 22nd, 1903.

——176th mile——

I examine the instrument and compare the steel tapes with the standard, find the instrument in perfect adjustment and the tapes of correct length.

S. 89° 54′ E. on the tangent to the parallel.
Descend over gently rolling mesa.

11.00 Draw, drains N. Irrigating ditch now dry, 1 ch. N., course NW. to NE.

57.58 Wagon road bears N. and S.

65.45 Top of ridge about 30 ft. high, bears NW. and SE.
Descend.

72.60 Irrigating ditch, now dry, at foot of ridge, course SE.
Thence across flat.
Difference between measurement of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.

7950 ft. 80.00 N. 75 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 12 ins. in the ground to bed rock, for 176th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 176 M. stamped in the center.
Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
No bearings.
Land, gently rolling mesa.
Soil, rocky and sandy, 4th rate.

Vegetation, weeds and greasewood.
Alt. 7950 ft.
Temp. 58°.

——177th mile——

S. 89° 53′ E. on the tangent to the parallel.
Over gently rolling mesa.

70.00 Foot of low ridge bears NE. and SW.; ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

8000 ft. 80.00 N. 92 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock, for 177th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 177 M. stamped in the center. Raised a mound of stone 6 ft. base, 3 ft. high around the post. Pits impracticable.
Top of San Antonio Mountain bears S. 44½° W.
Low peak S. end of pinon hills bears N. 69½° W.
Top of Ute Peak bears S. 65½° E.
About 2 miles N. to foot of pinon hills.
Land, lava mesa.
Soil, volcanic ash and sand, 4th rate.
Vegetation, scanty salt sage, grass, weeds and greasewood.
Alt. 8000 ft.
Temp. 62°.

——178th mile——

S. 89° 53′ E. on the tangent to the parallel.
Over nearly level mesa.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position

of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 110 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 178th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. 178 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
Low peak, S. end of pinon hills bears N. 73° W.
Top of San Antonio Mountain bears S. 47½° W.
Land, nearly level mesa.
Soil, sand and volcanic ash, 4th rate.
Vegetation, scanty, grass, weeds, salt sage and greasewood.
Alt. 7950 ft.
Temp. 70°.

——179th mile——

S. 89° 52′ E. on the tangent to the parallel.
Descend.

3.75 Bottom of draw drains NE.; ascend, leave mesa, bears NE. and SW.
4.00 Irrigating ditch, now dry, course NE.
5.00 Top of spur, slope NW.
Bottom of gulch, dry, course NW.
10.00 Foot of hill, bears NW. and SE.; ascend.
29.00 Top of spur, slope S.; descend gradually.
40.00 Head of draw, drains NE.
Ascend hill bears NE. and SW.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

8100 ft. 80.00 N. 129 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 179th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S., and 179 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post.
Pits impracticable.
This corner stands on point of spur, slope N.
No bearings.
Land, rolling.
Soil, sandy, 4th rate.
Vegetation, scanty, grass, weeds and grease wood.
Alt. 8100 ft.
Temp. 70°.

——180th mile——

S. 89° 52' E. on the tangent to the parallel.
Over rolling hills; descending.

10.00 In hollow drains N.; ascend.

21.00 Top of spur about 5 ft. high, slope N.; descend.

38.00 Bottom of ravine 50 ft. deep, course NW.; ascend.

8200 ft. 61.50 Top of ridge in gap or saddle. Peak 100 ft. higher about 10 chs. SW. and peak about the same height about 20 chs. N.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

8150 ft. 80.00 N. 150 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 180th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 180 M. stamped in the center.

Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
No bearings.
Land, rolling hills.
Soil, sandy and rocky, 4th rate.
Vegetation, salt sage, cactus and greasewood.
Alt. 8150 ft.
Temp. 72°.

——181st mile——

S. 89° 51′ E. on the tangent to the parallel.
Ascend over broken rock.

8200 ft. 37.00 Lava ridge bears NE. and SW.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

8100 ft. 80.00 N. 172 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 181st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M on S. and 181 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands at foot of small black butte, the top of which is about 10 chs. N.
No bearings.
Land, rolling.
Soil, rocky and sandy, 4th rate.
Vegetation, salt sage, cactus and greasewood.
Alt. 8100 ft.
Temp. 72°.

——182nd mile——

S. 89° 30′ E. on the tangent to the parallel.
Descending gradually.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks.; position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

8000 ft. 80.00 N. 196 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock, for 182nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 182 stamped in the center. Raised a mound of stone 5 ft. base. 3 ft. high around the post Pits impracticable.
Top of little black butte, bears N. 87½° W. about one mile dist.
Ute Peak bears S. 44° E.
Top of San Antonio Mountain bears S. 55° W.
Land, sloping E. and NE.
Soil, sandy, 4th rate.
Vegetation, salt sage, cactus and grease wood.
Alt. 8000 ft.
Temp. 72°.

——183rd mile——

S. 89° 50′ E. on the tangent to the parallel. Descending gradually.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

7900 ft. 80.00 N. 221 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 183rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 183 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
Ute peak bears S. 32° E.
Top of San Antonio Mt. bears S. 59° 45′ W
Land, sloping gently E.
Soil, very sandy, 4th rate.
Vegetation, salt sage and greasewood.
Alt. 7900 ft.
Temp. 76°.

——184th mile——

S. 89° 49′ E. on the tangent to the parallel. Descending gradually.

7825 ft.	40.20	On top of wall, brink of canon of Rio Grande, bears N. and SE. Difference between measurements of 40.20 chs. by 2 sets of chainmen is nothing; the mean is 40.20 chs.
	40.20	Stadia measurement from this point Angle 0°, Rod 9.20 double=1840 ft.+C.= 1.15 ft.=1841.15 ft.=27.89 chs.+40.20 chs.= 68.09 chs.
	46.00	Foot of wall about 125 ft. high, bears N. and SE.
	50.00	Rio Grande River, 2 chs. wide, water 3 ft. deep, course SE.
7700 ft.	62.00	Foot of wall of canon bears N. and S.
7825 ft.	65.90	Top of wall about 125 ft. high, bears NE. and S.
	68.09	Stadia point, thence by tape measurement, over nearly level land.
7825 ft.	80.00	N. 247 lks. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground, for 184th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N M on S. and 184 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. E. peak of Sierra Blanca bears N. 18° 10′ E. Ute Peak S. 24° E.

Top of San Antonio Mt. bears S. 58° 20′ W.
Land, mesa and canon.
Vegetation, greasewood and cactus, fringe of willow in canon.
Alt. 7825 ft.
Temp. 70°.

April 23rd, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct this morning.

——185th mile——

S. 89° 48′ E. on the tangent to the parallel, over gently rolling valley land.

7830 ft. 35.00 Top of ridge bears NW. and SE. about 30 ft. above last corner; descend.

56.32 Wagon road, bears NW. and SE. from the Rio Grande bridge about 6 miles N. to Taos, N.M.

75.00 Enter creek bottom, beard NE. and SW.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

7800 ft. 80.00 N. 275 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 185th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 185 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft. base around the post.
This cor. stands on creek bottom.
San Antonio Mt. bears S. 61° W.
Ute Peak bears S. 11° E.
Land, rolling and creek bottom.
Soil, sandy, 3rd rate and 4th rate.

Vegetation, scanty, grass, sage and rabbit brush.
Alt. 7800 ft.
Temp. 70°.

186th mile

S. 89° 48' E. on the tangent to the parallel.
Across creek bottom.

7790 ft.	10.32	Costilla River 1 ch. wide, muddy water, about 6 ins. deep, course SW.
	24.50	Wagon road bears NE. and SW.; ascend gradually.
7850 ft.	74.00	Top of bluff about 20 ft. high bears NE. and SW.
		Descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point,
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
7825 ft.	80.00	N. 305 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4ft. long with flanges at the bottom 2 ft. in the ground for 186th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 186 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		No bearings.
		This cor. stands at foot of bluff about 12 ft. high, bears NE. and SW.
		Alt. 7825 ft.
		Temp. 72°.

187th mil

S. 89° 47' E. on the tangent to the parallel, over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing, the mean is 80.00 chs.

7850 ft. 80.00 N. 337 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 187th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 187 M. stamped in the center. Dug Pits 36x36x18 ins. N., S., E. and W of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base, 2 ft. high around the post.
Ute Peak bears S. 17° 10′ W.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7850 ft.
Temp. 76°.

——188th mile——

S. 89° 46′ E. on the tangent to the parallel.
2.90 Wagon road bears NE. and SW.
47.65 Wagon road bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
7870 ft. 80.00 N. 370 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 188th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 188 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A red peak in the pinon hills bears N. 60° W.
Ute Peak bears S. 29° W.
Land, nearly level.
Soil, gravelly, 3 rd rate.
Vegetation, grass and sage.
Alt. 7870 ft.
Temp. 76°.

——189th mile——

S. 89° 46′ E. on the tangent to the parallel. Over nearly level land.
Difference between measurements of 80.00 chs.by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.;
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

7900 ft. 80.00 N. 404 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 189th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 189 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist., Raised a mound of stone 5 ft. base 2 ft. high around the post.
Red Peak bears N. 62° 15′ W.
Ute Peak bears S. 37½° W. Chefolo Peak bears S. 15½° W.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7900 ft.
Temp. 76°.

——190th mile——

S. 89° 45′ E. on the tangent to the parallel. Over nearly level land.
Difference between measurements of 80.00 chs. by 2sets of chainmen is 2 lks. position of middle point
By 1st set 70.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

7900 ft. 80.00 N. 440 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 190th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 190 M. stamped in the center. Dug

pits 36x36x18 ins. dia. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
East peak of the Sierra Blanca bears N. 12° 35′ E.
Ute Peak bears S. 45½° W.
Chefolo Peak bears S. 18½° W.
Land, nearly level.
Soil, very gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7900 ft.
Temp. 72°.

——191st mile——

S. 89° 44′ E. on the tangent to the parallel.
Over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

7860 ft. 80.00 N. 477 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 191st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 191 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
Sierra Blanca (East Peak) bears N. 10° 35′ E.
Red Peak in pinon hills bears N. 66° 35′ W.
Chefolo Peak bears S. 21° W.
Church spire in Costilla bears S. 73° 25′ E.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7860 ft.
Temp. 65°.

I carefully adjust the transit in all its parts.
April 24th, 1903.

At the 191st mile cor. April 25th, 1903 at 5h 18m A. M. l.m.t. I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground 10 chs. N. of my station.

At 7 h A. M., I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 10′ W.

This gives the magnetic declination 13° 10′ E.

I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations, and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

I compare the steel tapes with the standard and I find them of correct length.

——192nd mile——

East on the tangent to the parallel.

Over nearly level land.

12.80 Wagon road bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point

By 1st set 80.03 chs.

By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

7850 ft. 80.00 N. .76 of a link from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 192 nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 192 M. stamped in the

center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth, 5 ft. base 2 ft. high around post.
East peak Sierra Blanca, bears N. 9° 35′ E.
Red peak in pinon hills, SW. of Rio Grande bridge bears N. 68° W.
Chefolo Peak bears S. 24° 10′ W.
Church spire in Costilla bears S. 65° 10′ E. about 2 miles dist.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7850 ft.
Temp. 56°.

——193rd mile——

S. 89° 59′ E. on the tangent to the parallel, over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
7900 ft. 80.00 N. 3 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 193rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 193 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base, 2 ft. high around the post.
East peak Sierra Blanca bears N. 9° 15′ S.
Ute Peak bears S. 60½° W.
Church spire in Costilla bears S. 45½° E. about a mile dist.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.

Alt. 7900 ft.
Temp. 62°.

—194th mile—

S. 89° 50′ E. on the tangent to the parallel.

21.00 Wagon road bears NE. and SW.

29.55 Irrigation ditch, course N.

30.00 Pole fence bears N. and S.; enter cultivated fields bears N. and S.

61.48 W. side of Mexican adobe house in village of La Costilla about ½ mile North of the church. Line strikes house about 10 ft. N. of the S. end.

68.00 Street bears NW. and SE.

74.00 W. bank of La Costilla River, bears N. 10° E. and S. 10° W. 4 ft. high, stream 150 lks. wide, 6 ins. deep, muddy water swift current, course NE.

78.00 E. bank about 3 ft. high, bears N. and S.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point,

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 7 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 194th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 194 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of stone 5 ft. base 2 ft. high around the post.

This cor. stands on right bank of Costilla River by wire fence, at west edge of cultivated field.

A cottonwood tree 30 ins. dia. bears N. 78° E. 292 lks. dist. marked Colo., 194 M., B.T.

A cottonwood tree 26 ins. dia. bears S. 22° E. 322 lks. dist. marked N.M., 194 M., B. T.

No other trees within limit suitable for bearing trees.
Church spire in Costilla bears S. 5¼ W. about ½ mile dist.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass, sage and cultivated crops.
A few cottonwood trees along E side of river.
Alt. 7950 ft.
Temp. 64°.

——195th mile——

S. 89° 58' E. on the tangent to the parallel, across river bottom. Enter cultivated field.

2.50 Irrigating ditch, course N.

3.00 Narrow line of willow brush bears NE. and SW.

6.00 Leave brush, enter cultivated field. Bears NE. and SW.

79.90 Brook 2 lks. wide, course NE.
Difference between measurement of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point,
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

8000 ft. 80.00 N. 12 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 195th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 195 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base 2 ft. high around the post.
West pit comes in brook. Impracticable.
This cor. stands on right bank of stream.
No bearings.
Land sloping gradually toward river.
Soil, gravelly, 3rd rate.

Vegetation, cultivated crops.
Alt. 8000 ft.
Temp. 60°.

——196th mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascending gradually.

7.50 Leave cultivated land, bears NE. and SW.

10.90 Wire fence bears NE. and SW.

8020 ft. 12.00 Wagon road, bears NE. and SW.
Foot of hills bears NE. and SW.; ascend.
Difference between measurements of 20.30 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 20.31 chs.
By 2nd set 20.29 chs.; the mean of which is 20.30 chs.

20.30 On bench bears NE. and SW.
Stadia measurement from this point,
Angle 6+, Rod 12.50 single=1250 ft.× .9891.38 ft.+C.=1.14 ft.=1237.52 ft.=18.75 chs.+20.30 chs.=39.05 chs.

39.05 Stadia point on bench bears N. and S.
Stadia measurement,
Angle 9°+, Rod 7.65 single=765 ft.×.9755 =746.25 ft.+C.=1.13 ft.=747.39 ft.=11.32 chs.+39.05 chs.=50.37 chs.

50.37 Stadia point on bench, bears N. and S.
Enter pinon timber, bears N. and S.
Stadia measurement,
Angle 11°+, Rod 11.29 double=2258 ft.× .9636=2175.81 ft.+C.=1.13 ft.=2176.94 ft. =32.98 chs.+83.25 chs.=.80 chs.=3.35 chs. on 197th mile.

80.00 Comes on steep W. slope of lava wall. Impracticable to establish the cor. at this point.
Land, rough and broken.
Soil, rocky, and sandy, 4th rate.
Vegetation, grass, sage and pinon timber.

——197th mile——

S. 89° 57′ E. on the tangent to the parallel.

Ascend.

3.35 On top of lava rim rock bears N. and S. Stadia point, thence by tape measurement,

8550 ft. 4.00 N. 20 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 196th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 196.05 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post. Pits impracticable.
A pinon tree 7 ins. dia. bears N. 34½° E. 23 lks. dist. marked Colo. 196.05 M., B.T.
A pinon tree 7 ins. dia. bears S. 66½° E. 102 lks. dist. marked N.M., 196.05 M., B.T.
A cedar tree 8 ins. dia. bears S. 7¼° W. 78 lks. dist. marked N.M., 196.05 M., B.T.
A cedar tree 8 ins. dia. bears N. 8½° W. 48 lks. dist. marked Colo., 196.05 M., B.T.
Alt. 8550 ft.
Temp. 55°.
Thence over top of lava hill.

20.00 Descend gradually, slope SE.

31.00 Leave timber bears N. and S. Enter heavy sage brush.

32.00 Wagon road bears NW. and SE.

79.60 Wagon road, bears NE. and SW.
Difference between measurements of 76.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 76.03 chs.
By 2nd set 75.97 chs.; the mean of which is 76.00 chs. +4.00 chs.=80.00 chs.

8500 ft. 80.00 N. 27 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 18 ins. in the ground to bed rock, for 197th mile cor. A brass cap on the top of pipe has raised letters Colo. on N., N.M. on S. and 197 M. stamped in the center. Raised a mound of stone, 6 ft. base, 2½ ft. high around the post. Pits impracticable.

First peak on main range N. of the line bears N. 71° 20′ E.
A sharp timbered peak bears S. 6° 25′ W.
Land, mountainous.
Soil, rocky, clay and sand, 3rd rate.
Vegetation, sage, cedar and pinon.
Alt. 8500 ft.
Temp. 55°.

S. 89° 56′ E. on the tangent to the parallel. Descending.

7.30 Dry ravine, course S. about 50 ft. deep; ascend.

12.00 Top of rocky spur, about 50 ft. high, slope SE.

31.00 On spur, slope SE.; descend. Enter scattering pinon.

47.00 Foot of hills, leave timber. Enter Arroyo Seca valley bears NE. and SW.

64.40 Wagon road, bears NE. and SW.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

8450 ft. 80.00 N. 37 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 198th mile cor.
Abrass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 198 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor 6 ft. dist.
Raised a mound of earth, 5 ft. base 2 ft. high around the post.
Sharp peak of main range bears N. 70½° E.
Timbered peak bears S. 16¼° W.
Ute Peak bears S. 71° W.
Land, rolling.
Soil, sandy, 3rd rate.
Vegetation, grass, sage and scattering

pinon.
Alt. 8450 ft.
Temp. 48°.

April 25th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

——199th mile——

S. 89° 55′ E. on the tangent to the parallel.
Over gently rolling land.
44.14 Wagon road, bears NE. and SW.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
8500 ft. 80.00 N. 14 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 199th mile cor. A brass [redacted] top of the pipe has raised letters Colo. on N., N.M. on S. and 199 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Sharp timbered peak bears S. 26° W.
Peak on main range N. of line bears N. 69¼° E.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage.
Alt. 8500 ft.
Temp. 45°.

——200th mile——

S. 89° 55′ E. on the tangent to the parallel.
66.97 Wagon road bears NE. and SW.
Difference between measurements of 80.00

chs. by 2 sets of chainmen is nothing; the mean of which is 80.00 chs.

8500 ft. 80.00 N. 62 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 200th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 200 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of stone 5 ft. base 2 ft. high around the post.
East peak of Sierra Blanca bears N. 0° 45′ W.
Small cone in valley bears N. 5¼° W. about 3 miles dist.
Sharp timbered peak bears S. 34¼° W.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage.
Alt. 8500 ft.
Temp. 52°.

——201st mile——

S. 89° 54′ E. on the tangent to the parallel.

57.10 Gusch, stream 3 lks. wide, course N.

8550 ft. 61.00 Foot of hills, leave valley, bears NE. and SW.; ascend, an irrigated meadow S. of line.
Mexican house about 20 chs. S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point.
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

8650 ft. 80.00 N. 76 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 201st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 201 M. stamper in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the

cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
Small cone in valley bears N. 23½° W.
East peak Sierra Blanca bears N. 2½° W.
Ute Peak bears S. 74° 45′ W.
Land, gently rolling.
Soil, sand, clay, 3rd rate.
Vegetation, grass and sage.
Alt. 8650 ft.
Temp. 60°.

——202nd mile——

S. 89° 53′ E. on the tangent to the parallel.

8700 ft. 44.00 Foot of mountains, Culebra range, bears N. and S.
Ascend.

55.00 A pile of stone, but no legible marks, which I take to be Darling's 130th mile cor., bears S. 24.00 chs. from the tangent. I find no Darling corners E., of here until I reach his 117th mile cor.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

8800 ft. 80.00 N. 92 lks from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 202nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 202 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
Ute Peak bears S. 75½° W.
Small cone in valley bears N. 37° 45′ W. about 5 miles dist.
East peak of Sierra Blanca bears N. 4° W.
Land, mountainous.
Soil, clay loam, 3rd rate.

Vegetation, grass and sage.
Alt. 8800 ft.
Temp. 55°.

——203rd mile——

S. 89° 53′ E. on the tangent to the parallel.
Ascend along NW. slope.

21.00 Enter oak, willow and aspen brush; and aspen timber bears NW. and S.

79.75 Dry ravine 15 ft. deep, course N.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point
By 1st set 80.04 chs.
By 2nd set 80.06 chs.: the mean of which is 80.00 chs.

8850 ft. 80.00 N. 110 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 203rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 203 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 36 ins. dia. bears N. 28½° E. 149 lks. dist. marked Colo. 203 M., B.T.
An aspen tree 7 ins. dia. bears S. 41½° E. 17 lks.. dist marked N.M., 203 M., B.T.
An aspen tree 6 ins. dia. bears S. 49½° W. 60 lks. dist. marked N.M., 203 M., B.T.
A balsam fir tree 10 ins. dia. bears N. 33½° W. 55 lks. dist. marked Colo., 203 M., B.T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, scattering pine and aspen timber; oak, aspen and willow brush.
Alt. 8850 ft.
Temp. 55°.

April 26th, 1903.

From the 203rd mile cor. the line was run over the mountain range as a random, ow-

ing to the snow being too deep to set the permanent corners.

At 217 miles 3.55 chs., I intersect a meridian line from the 5th Astronomical station at 32.44 chs. N. of said station.

The latitude of this station as determined by astronomical observations, made on the nights of October 21st, 22nd and 23rd, 1902, is 36° 35.95″ or 36.84 chs., South of the true parallel.

Our offset for this point is 19 lks. N. of the tangent, which would place the boundary line as projected from the W. 4.21 chs. S. of the true parallel (inside the limit) but as this line has been run from the 203rd mile as a random line, I make the offset from the tangent at our 217th mile cor. 271 lks. N. of the tangent, and locate the point for the 217th mile cor. 35.15 chs. N. of the Astronomical station and 169 lks. S. of the 37th parallel, as determined by astronomical observations.

This will amount to a correction of 18 lks. to the mile to the N. from the 203rd mile. I return and make this correction later in the season when the snow has gone, as will be seen by the dates given.

July 7th, 1903, I examine the transit, compare the steel tapes with the standard and find them all correct and in adjustment.

——204th mile——

S. 89° 52′ E. on the tangent to the parallel

Ascend along N. slope in timber and brush.

42.00 Stream 6 lks. wide, course NW.; ascend W. slope.

56.12 Top of spur slope S.; ascend gradually.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,

By 1st set 80.05 chs.

By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

9300 ft. 80.00 N. 129 lks.+Correction 18 lks. N.=147. lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 204th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 204 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands at foot of a rock-slide on N. slope; a small lake about 20 chs. N.
An aspen tree 10 ins. dia. bears N. 40½° E. 49 lks. dist. marked Colo., 204 M., B.T.
An aspen tree, 8 ins. dia. bears S. 55½° E. 47 lks. dist. marked N.M., 204. M., B.T.
An aspen tree 8 ins. dia. bears S. 49½° W. 22 lks. dist. marked N.M., 204 M., B.T.
An aspen tree 8 ins. dia. bears N. 28° W. 22 lks. dist. marked Colo., 204 M., B.T.
Land, mountainous.
Soil, rocky, clay, 3rd. rate.
Vegetation, spruce and aspen timber; oak and aspen brush.
Alt. 9300 ft.
Temp. 75°.

——205th mile——

S. 89° 52′ E. on the tangent to the parallel.
Ascend steep NW. slope.

9830 ft. 24.88 Top of sharp spur, slope N.
Thence by stadia measurement,
Angle 5° +, Rod 13.00 double=2600 ft.×9924=2580.24 ft.+C.=1.14 ft.=2581.38 ft.=39.50 chs.+24.88 chs.=64.38 chs.

9000 ft. 55.00 Bottom of canon about 800 ft. deep; S. branch of the Calavera River, stream 10 lks. wide, course NW.; ascend.

64.38 Stadia point on spur, slope NW.

Thence by tape measurement, ascend very steep N. slope.
Difference between measurements of 40.50 chs. by 2 sets of chainmen is 6 lks. position of middle point,
By 1st set 40.53 chs.
By 2nd set 40.47 chs.; the mean of which is 40.50 chs.+39.50 chs.=80.00 chs.

10400 ft. 80.00 N. 150 lks.+Correction 36 lks. N.=186 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 205th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 205 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
This cor. stands on steep N. slope.
A spruce tree 6 ins. dia. bears N. 85° E. 30 lks. dist. marked Colo., 205 M., B.T.
An aspen tree 6 ins. dia. bears S. 53½° E. 24 lks. dist. marked N.M., 205 M., B.T.
A spruce tree 10 ins. dia. bears S. 58° W. 84 lks. dist. marked N.M., 205 M., B.T.
A spruce tree 8 ins. dia. bears N. 31° W. 52 lks. dist. marked Colo., 205 M., B.T.
Land, mountainous, rough and broken.
Soil, rocky, 4th rate.
Vegetation, spruce and aspen timber, spruce and aspen brush.
Alt. 10400 ft.
Temp. 80°.

——206th mile——

S. 89° 51′ E. on the tangent to the parallel.
Ascend through timber and brush.

14.00 Top of spur, slope SW.; ascend.

41.00 Top of bluff, bears NE. and SW.

75.00 Leave timber, bears N. and S. Ascend steep W. slope over broken rock.

11500 ft. 80.00 Comes on steep W. slope among broken

rock. Impracticable to establish corner at this point.
Land, mountainous.
Soil, rocky, 4th rate.
Vegetation, spruce and aspen, timber and brush.
Alt. 11500 ft.
Temp. 70°.

S. 89° 50′ E. on the tangent to the parallel.
Ascend very steep over broken rock.
Difference between measurements of 108.00 chs. by 2 sets of chainmen is 20 lks. position of middle point,
By 1st set 108.10 chs.
By 2nd set 107.90 chs.; the mean of which is 108.00 chs.—80.00 chs.=28.00 chs.

12000 ft. 28.00 N. 180 lks.+Correction N. 60 lks.=240 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 10 ins. in broken rock, to bed rock for 206th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 206.35 M. stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post. Pits impracticable.
East peak Sierra Blanca bears N. 9° 35′ W.
Ute Peak bears S. 79° 10′ W.
Sharp peak on spur bears S. 64° 20′ W. about 2 miles dist.
This cor. stands on shoulder of mountain; a bare rock spur, slope W. above timber line.
Alt. 12000 ft.
Temp. 70°.
Ascend along spur.
Difference between measurements of 29.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
By 1st set 29.92 chs.
By 2nd set 28.98 chs.; the mean of which is 29.00 chs.+28.00 chs.=57.00 chs.

57.00 Stadia measurements from this point, Angle 18°+, Rod 10.50 double=2100 ft.× .9045=1899.45 ft.+C.=1.09 ft.=1900.54 ft. =28.79 chs.+57.00 chs.=85.79 chs.—80.00 chs.=5.79 chs. on the 208th mile.

80.00 Comes on W. slope of mountain near top. I advance this cor. to the top.
Land, mountainous.
Soil, none, all rock.
Vegetation, moss and lichen.

——208th mile——

S. 89° 50′ E. on the tangent to the parallel.
Ascend over broken rock.

5.79 Stadia measurement, thence by tape measurement,

12700 ft. 8.00 N. 199 lks.+Correction 74 lks. N.=273 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in broken rock, for 207th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 207.1 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
High peak on range bears N. 44° 45′ E.
Monument on lower peak, appears to be shaft of stone, 8 or 10 ft. high, bears N. 56° E. about 5 miles dist.
East peak Sierra Blanca bears N. 10½° W.
Ute Peak in San Luis bears S. 79° 30′ W.
This cor. stands on top of high spur of the Culebra Range that bears N. and S. at this point, but the trend of the range is NE. and SW. This spur is much higher than the "divide," further E. and above timber line.
Alt. 12700 ft.
Temp. 60°.
Descend gradually.

12650 ft. 17.87 Brow of mountain bears N. and S. On snow bank about 30 ft. deep.

Stadia measurement from this point,
Angle 16°—, Rod 9.04 double=1808 ft.×
.9240=1670.59 ft.+C.=1.10 ft.=1671.69 ft.
=25.33 chs.+17.87 chs.=43.20 chs.

43.20 Stadia point on spur, slope NE. Enter timber; descend.
Stadia measurement,
Angle 17°—, Rod 6.70 double=1340 ft.×
.9145=1225.43 ft.+C.=1.10 ft.=1226.53 ft.=
18.58 chs.+43.20 chs.=61.78 chs.

50.00 Hollow drains SE.; ascend.

61.78 Stadia point on spur, slope SW.
Descend steep bluff.
Stadia measurement,
Angle 14°—, Rod 11.00 single=1100 ft.×
.9415=1035.65 ft.+C.=1.11 ft.=1036.76 ft.=
15.71+61.78 chs.=77.49 chs.

68.00 Foot of bluff bears NE. and SW.; dry ravine, course NE.
Ascend.

72.00 On flat spur, slope NE.; descend in dead fallen timber.

77.49 Stadia point, thence by tape measurement.

1000 ft. 80.00 N. 211 lks.+Correction, 90 lks. N.=311 lks. N. from the tangent,
Set an iron pipe, 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 208th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 208 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A spruce tree 5 ins. dia. bears N. 51½° E. 40 lks. dist. marked Colo., 208 M., B.T.
A spruce tree 4 ins. dia. bears S. 29½° E. 22 lks. dist. marked N.M., 208 M., B.T.
A spruce tree 5 ins. dia. bears S. 15° W. 16 lks. dist. marked N.M., 208 M., B.T.
A spruce tree 8 ins. dia. bears N. 28° W. 61 lks. dist. marked Colo., 208 M., B.T.

This cor. stands on NE. slope in dead and fallen timber, and young spruce.
Land, mountainous.
Soil, rocky, 4th rate.
Vegetation, spruce, timber and brush.
Alt. 11000 ft.
Temp. 65°.

July 7th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

July 6th, 1903.

——209th mile——

S. 89° 49′ E. on the tangent to the parallel.
Descend in timber and brush.

10900 ft. 12.00 Brow of bluff bears NE. and SW.; descend.
17.00 Enter heavy spruce timber, bears N. and S.
10000 ft. 80.00 Comes in ravine, stream 3 lks. wide, course N.
I advance this cor.
Land, mountainous.
Soil, rocky, 4th rate.
Vegetation, spruce and aspen timber and brush.

——210th mile——

S. 89° 48′ E. on the tangent to the parallel.
Ascend.
Difference between measurements of 95.20 chs. by 2 sets of chainmen is 14 lks., position of middle point,
By 1st set 95.27 chs.
By 2nd set 95.13 chs.; the mean of which is 95.20 chs.—80.00 chs.=15.20 chs.
10050 ft. 15.20 N. 252 lks.+Correction=112 lks.=364 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 209th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 209.19 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A spruce tree 6 ins. dia. bears N. 65½° E. 12 lks. dist. marked Colo., 209.19 M., B.T.
A spruce tree 6 ins. dia. bears S. 65¼° E. 72 lks. dist. marked N.M., 209.19 M., B.T.
An aspen tree 5 ins. dia. bears S. 44½° W. 94 lks. dist. marked N.M., 209.19 M., B.T.
An aspen tree 5 ins. dia. bears N. 79° W. 70 lks. dist marked Colo., 209.19 M., B. T.
This cor. stands on the top of a glacial moraine, bears N. and S.
Alt. 10050 ft.
Temp. 70°.
Descend.

20.00 Foot of bluff about 200 ft. high bears N. and S.

9850 ft. 22.00 N. fork of the Costilla River, 10 lks. wide, course SE.
Ascend.

37.60 Top of spur, slope S. about 100 ft. above creek, thence along S. slope.

67.00 Stream 6 lks. wide, course S.; ascend along S. slope over aspen covered hills.
Difference between measurements of 64.80 chs. 2 sets of chainmen is 8 lks. position of middle point,
By 1st set 64.84 chs.
By 2nd set 64.76 chs.; the mean of which is 64.80 chs.+15.20 chs.=80.00 chs.

10000 ft. 80.00 N. 275 lks.+Correction 126 lks. N.=401 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 210th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M., on S. and 210 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
An aspen tree 5 ins. dia. bears S. 75° E. 32

lks. dist. marked N.M., 210 M., B.T.
An aspen tree 6 ins. dia. bears N. 28½° W. 193 lks. dist. marked Colo., 210 M., B.T.
No other trees within limit, suitable for bearing trees.
This cor. stands on rocky SW. slope in aspen brush.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass; aspen and willow brush; and scattering spruce and aspen timber.
Alt. 10000 ft.
Temp. 72°.

——211th mile——

S. 89° 48′ E. on the tangent to the parallel.
Ascend along S. slope in aspen and willow brush.

18.00 Stream 4 lks. wide, course SW.
45.00 Stream 3 lks. wide, course SW.
10900 ft. 69.00 Top of high rocky spur, slope S.; descend.
10800 ft. 79.00 Stream 4 lks. wide, in ravine, course SW.; ascend.
80.00 Comes in dense brush.
I advance this cor.
Land, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, grass, aspen and willow brush; scattering spruce and aspen timber.

——212th mile——

S. 89° 47′ E. on the tangent to the parallel.
Ascend through timber and brush.
Difference between measurements of 84.00 chs. by 2 sets of chainmen is 16 lks., position of middle point,
By 1st set 84.08 chs.
By 2nd set 83.92 chs.; the mean of which is 84.00 chs.—80.00 chs.=4.00 chs.
11100 ft. 4.00 N. 306 lks.+Correction 145 lks. N.=451 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 211th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 211.05 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A spruce tree 5 ins. dia. bears N. 43½° E. 21 lks. dist. marked Colo., 211.05 M., B.T.
A spruce tree 6 ins. dia. bears S. 54¼° E. 125 lks. dist. marked N.M., 211.05 M., B.T.
A spruce tree 12 ins. dia. bears S. 54½° W. 79 lks. dist. marked N.M., 211.05 M., B.T.
A spruce tree 6 ins. dia. bears N. 74° W. 105 lks. dist. marked Colo., 211.05 M., B.T.
This cor. stands on W. slope in timber.
Alt. 11100 ft.
Temp. 72°.
Ascend.

11200 ft. 17.41 Top of Divide between the waters of the Rio Grande and those that flow eastward, bears N. for ¼ mile, then NW. and S. for 60 chs., then SW. Alt. 11200 ft.
Descend through heavy spruce timber.

30.00 Leave heavy spruce timber and enter aspen and scattering spruce timber, bears N. and S.

75.00 Foot of slope, bears NE. and SW. Enter dense willow brush, bears NE. and SW.
Difference between measurements of 76.00 chs. by 2 sets of chainmen is 10 lks., position of middle point.
By 1st set 76.05 chs.
By 2nd set 75.95 chs.; the mean of which is 76.00 chs. + 4.00 chs. = 80.00 chs.

10500 ft. 80.00 Comes in dense willow brush, ground swampy, impracticable to establish corner at this point.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, spruce and aspen timber; aspen and willow brush.

July 6th, 1903.

At the point for the 212th mile cor., as located May 4th, 1903, I observe Polaris at eastern elongation, at 4h 39m A. M. l.m.t. May 5th, 1903, and mark a point in the line so found on a plug driven in the ground N of my station. At 7h A. M. May 5th, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13° 25′ W.

This gives the magnetic variation, 13° 25′ E.

I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

May 5th, 1903.

July 5th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

——213th mile——

East on the tangent to the parallel.

23.00 Leave willow brush and swampy ground, bears NE. and SW.

Difference between measurements of 26.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,

By 1st set 26.01 chs.

By 2nd set 25.99 chs.; the mean of which is 26.00 chs.

10500 ft. 26.00 N. .2 of a link+Correction 167 lks. N.—167.2 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for

the 212th mile cor. A brass cap on the pipe has raised letters Colo. on N., N.M. on S. and 212.325 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
An aspen tree 5 ins. dia. bears S. 7° E. 125 lks. dist. marked N.M., 212.325 M., B.T.
An aspen tree 5 ins. dia. bears S. 5½° W. 142 lks. dist. marked N.M., 212.325 M., B.T.
No other trees within limits suitable for bearing trees.
High peak on range bears N. 4½° W.
Monument(appears to be shaft of stone, 8 or 10 ft. high) on low peak bears N. 34½° W. about 4 miles dist.
Alt. 10500 ft.
Temp. 65°.

28.00 Enter dense willow brush, bears NE. and SW.

29.00 Stream 2 lks. wide, course NE.; ascend.

30.00 Leave willow, enter aspen brush, bears NE. and SW.

10700 ft. 55.00 Top of ridge bears NE. and SW.; descend.

80.00 Comes in dense brush on steep SE. slope.
I advance this cor.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass, dense aspen brush, scattering spruce and aspen timber.

——214th mile——

S. 89° 59′ E. on the tangent to the parallel.

9900 ft. 13.00 Bottom of deep ravine, course NE.; ascend.
Difference between measurements of 70.00 chs. by 2 sets of chainmen is 12 lks. position of middle point,
By 1st set 70.06 chs.
By 2nd set 69.94 chs.; the mean of which is 70.00 chs.+26.00 chs.—96.00 chs. — 80.00 chs.—16.00 chs.

9950 ft. 16.00 N. 1 lk.+Correction 183 lks. N.=184 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 213th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 213.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A spruce tree 12 ins. dia. bears N. 43½° E. 45 lks. dist. marked Colo. 213.2 M., B.T.

A spruce tree 12 ins. dia. bears S. 65° E. 35 lks. dist. marked N.M., 213.2 M., B.T.

A spruce tree 12 ins. dia. bears S. 27½° W. 68 lks. dist. marked N.M., 213.2 M., B.T.

An aspen tree 5 ins. dia. bears N. 57½° W. 41 lks. dist. marked Colo., 213.2 M., B.T.

This cor. stands on N. slope in timber and brush.

Alt. 9950 ft.

Temp. 70°.

Thence along N. slope; descending.

Difference between measurements of 64.00 chs. by 2 sets of chainmen is 14 lks. position of middle point,

By 1st set 64.07 chs.

By 2nd set 63.93 chs.; the mean of which is 64.00 chs.+16.00 chs.=80.00 chs.

9400 ft. 80.00 N. 3 lks.+Correction 198 lks. N.=201 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 214th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 214 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A spruce tree 12 ins. dia. bears N. 37½° E. 42 lks. dist. marked Colo. 214 M., B.T.

An aspen tree 5 ins dia. bears S. 32½° E. 73 lks. dist. marked N.M., 214 M., B.T.
An aspen tree 5 ins. dia. bears S. 42½° W. 54 lks. dist. marked N.M., 214 M., B.T.
A spruce tree 12 ins. dia. bears N. 58½° W. 154 lks. dist. marked Colo., 214 M., B.T.
This cor. stands on N. slope in thick aspen.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, spruce and aspen timber; dense aspen brush.
Alt. 9400 ft.
Temp. 70°.

———

——215th mile——

S. 89° 59′ E. on the tangent to the parallel. Descend.

4.00 Stadia measurement,
Angle 6°+, Rod 13.00 double=2600 ft.×.9891=2571.66 ft.+C.=1.14 ft.=2572.80 ft.=38.98 chs.+4.00 chs.=42.98 chs.

9000 ft. 20.00 N. fork of Vermejo or Canadian River, 20 lks. wide, course SE. in canon about 400 ft. deep; ascend.

42.98 Stadia point, thence by tape measurement; ascend along SW. slope.

9500 ft. 52.00 Top of high spur, slope SW.; descend.

6.00 Bottom of dry gulch, course SW.

67.00 Darling's 117th mile cor., a conglomerate stone 16x10x5 ins. above ground, bears S. 32 chs. dist.
I destroy this cor., and the marks on the bearing trees.
This is the first cor. of Darling's I have been able to find this side of the mountain range.

77.00 Dry gulch, course SW.; ascend.
Difference between measurements of 41.02 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 41.05 chs.

By 2nd set 40.99 chs.; the mean of which is 41.02 chs.+38.98 chs.=80.00 chs.

9300 ft. 80.00 N. 7 lks.+Correction 216 lks. N.=N. 233 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 215th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 215 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

No trees within limits suitable for bearing trees.

Land, mountainous.

Soil, clay and sand, 3rd rate.

Vegetation, oak and aspen brush; scattering spruce and aspen timber.

Alt. 9300 ft.

Temp. 72°.

——216th mile——

S. 89° 58' E. on the tangent to the parallel. Difference between measurements of 23.00 chs. by 2 sets of chainmen is 2 lks. position of middle point,

By 1st set 23.01 chs.

By 2nd set 22.99 chs.; the mean of which is 23.00 chs.

9400 ft. 23.00 Top of ridge bears NE. and SW.; descend.

Stadia measurement from this point,

Angle 9°—, Rod 10.20 double=2040 ft.× .9755=1990.02 ft.+C.=1.13 ft.=1991.15 ft.= 30.17 chs.+23.00 chs.=53.17 chs.

53.17 Stadia point on bench bears NE. and SW.; descend.

Stadia measurement,

Angle 16°+, Rod 9.10 double=1820 ft.× .9240=1681.68 ft.+C.=1.10 ft.=1682.78 ft.= 25.49 chs.+53.17 chs.=78.66 chs.

9000 ft. 60.00 Bottom of canon, stream 15 lks. wide, course SW.

Ascend.

78.66 Stadia point, thence by tape measurement,

9500 ft. 80.00 N. 12 lks. + Correction 234 lks. N. = 246 lks. N. from the tangent,
Set temporary cor.
Adjusted under instructions dated Sept. 9th, 1903.
See page 417.
Land, mountainous.
Soil, rocky, 4th rate.
Vegetation, grass, pine, aspen, willow and sage brush.
Alt. 9500 ft.
Temp. 65°.

——217th mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascend over rocks and through brush.

9650 ft. 3.00 Top of high, rocky ridge, bears N. 70° E. and S. 70° W.
Descend by stadia measurement,
Angle 15°—, Rod 8.50 double = 1700 ft. × .9330 = 1585.10 ft. + C. = 1.11 ft. = 1587.21 ft. = 24.04 chs. + 3.00 chs. = 27.04 chs.

10.00 Foot of rocks, bears NW. and SE.

27.04 Stadia point, thence by tape measurement, along S. slope.
Descend.
Difference between measurement of 52.96 chs. by 2 sets of chainmen is 8 lks. position of middle point,
By 1st set 53.00 chs.
By 2nd set 52.92 chs.; the mean of which is 52.96 chs. + 27.04 chs. = 80.00 chs.

8700 ft. 80.00 N. 19 lks. + Correction 252 lks. = 271 lks. N. from the tangent.
Set temporary cor.
The point located May 7th, 1903.
See page 417.
Land, mountainous.
Soil, sand and clay, 3rd rate.

Vegetation, grass, pine timber; oak and aspen brush.
Alt. 8700 ft.
Temp. 65°.

July 5th, 1903.

Having carefully adjusted the transit in all its parts. At the point for the 217th mile cor. May 8th, 1903, at 4h 27m A. M. l.m.t I observe Polaris at eastern elongation, and mark a point in the line so determined on a plug driven in the ground N. of my station. At 7h A. M. May 8th, 1903, I lay off the azimuth of Polaris 1°30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground N. of my station.
The magnetic bearing of this meridian is N. 13° 30′ W.
This gives the magnetic declination 13° 30′ E.
I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.

——218th mile——

East on the tangent to the parallel.
Descending in pine timber.

12.00 Leave timber bears NE. and SW.
14.87 Wagon road from Costilla to Trinidad, via San Francisco Pass, bears NE. and SW.
17.65 Stream 3 lks. wide, course SW.
8650 ft. 18.97 N. .2 of a link from the tangent,
Set temporary astronomical monument, See page 418.
The line from this point was run through to the 6th astronomical station, on the 275th mile, where the falling was found to be 18.66

chs. N. of the 37th parallel, as determined by astronomical observations on nights of Oct. 28th, 29th and 30th, 1902. This being outside of the limit of 3" of arc allowed by the Hon. Commissioner the line was adjusted by applying the correction of 24.7 lks. per mile to the south, to bring it within said limit.

26.00 Foot of hill, leave small valley, bears NE. and SW.; ascend.

66.32 On top of spur, slope NE.; ascend along N. slope.

9500 ft. 79.54 Top of ridge bears NE. and SW., about 850 ft. above valley.
Descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

9490 ft. 80.00 N. .76 of a link,—Correction 18 lks. S.=17.24 lks. S. from the tangent,
Set temporary 218th mile cor.
Land, mountainous.
Soil, rocky, 3rd rate.
Vegetation, pine timber; oak and aspen brush.
Alt. 9490 ft.
Temp. 70°.

July 4th, 1903.

N. B.—This line was corrected when we returned over it from the East, and the corners set on the true line, which accounts for the dates running contrary to the course of the line.

——219th mile——

S. 89° 59′ E. on the tangent to the parallel. Descending through scattering pine timber.

43.00 Stadia point, thence by stadia measurement, Level, Rod 13.00 double=2600 ft.+C.=1.15 ft.=2601.15 ft.=39.41 chs.+43.00 chs.=84.41

chs.—80.00 chs.=2.41 chs. on 220th mile.

9000 ft. 75.00 Stream 3 lks. wide, course S. in ravine about 500 ft. deep; ascend.

80.00 Comes on very steep N. slope in dense brush. I advance this cor.
Land, mountainous.
Soil, clay loam, and rocky, 3rd rate.
Vegetation, pine and pinon timber, oak and aspen brush.

——220th mile——

S. 89° 59′ E. on the tangent to the parallel.

2.41 Stadia point, thence by tape measurement. Ascend steep.

23.50 Top of ridge bears NE. and SW.
Difference between measurements of 64.59 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 64.64 chs.
By 2nd set 64.54 chs.; the mean of which is 64.59 chs. + 39.41 stadia measurement = 104.00 chs.—80.00 chs.=24.00 chs. on 220th mile.

9500 ft. 24.00 N. 4 lks.—Correction of 50. lks. S.=46 lks. S. from the tangent,
Set temporary 219th mile cor. stamped 219.3 M.
Alt. 9500 ft.
Temp. 50°.
Descend.

9100 ft. 65.00 Bottom of dry ravine, course SW.; ascend.

78.20 Timber road, bears NE. and SW.

78.40 Wire fence bears NE. and SW. on low hills, bears NE. and SW.

9300 ft. 80.00 N. 7 lks.—Correction 67 lks. S.=60 lks. South from the tangent,
Set an iron pipe, 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 220th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 220 M. stamped in the center. Raised

a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 12 ins. dia. bears N. 26° E. 168 lks. dist. marked Colo., 220 M., B.T.
An aspen tree 8 ins. dia. bears S. 24¼° E. 48 lks. dist. marked N.M., 220 M., B.T.
A yellow pine tree 16 ins. dia. bears 33½° W. 48 lks. dist. marked N.M., 220 M., B.T.
An aspen tree 8 ins. dia. bears N. 30° W. 87 lks. dist. marked Colo., 220 M., B.T.
This cor. stands on flat where timber has been cut for saw mill.
Land, rolling asd broken.
Soil, clay loam, 3rd rate.
Vegetation, pine and aspen timber; and oak and aspen brush.
Alt. 9300 ft.
Temp. 80°.

——221st mile——

S. 89° 58′ E. on the tangent to the parallel.
Through timber and brush, and over gently rolling ground.

20.00 Top of flat ridge bears NE. and SW.
Descend gradually along N. slope.

25.00 Ruins of old saw-mill in gulch about 10 chs. N.

27.70 Bottom of dry ravine, course SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point,
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is
9050 ft. 80.00 chs.
9050 ft. 80.00 N., 12 lks.—Correction 92 lks. S.—80. lks. South from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 221st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 221 M. stamped in the cen-

ter. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 12 ins. dia. bears S. 74½° E. 223 lks. dist. marked N.M., 221 M., B.T.
A pine tree 16 ins. dia. bears N. 12½° W. 323 lks. dist. marked Colo., 221 M., B.T.
No other trees within limits suitable for bearing trees.

Land, rolling.
Soil, clay loam, 3rd rate.
Vegetation, pine, pinon and aspen timber; and oak and aspen brush.
Alt. 9050 ft.
Temp. 80°.

——222nd mile——

S. 89° 57' E. on the tangent to the parallel.

.10 Road to old saw-mill, bears SE. and NW.; ascend.

8.90 Top of ridge bears NE. and SW. about 100 ft. high.

13.76 Thence by stadia measurement,
Level, Rod 10.16 single=1016 ft.+C.=1.15 ft.=1017.15 ft.=15.41 chs.+13.76 chs.=29.17 chs.

18.00 Dry gulch, course SW. about 100 ft. deep; ascend.

29.17 Stadia point, on spur, slope S.
Angle 2° +, 12.73 Rod, single=1273 ft.× .9988=1271.47 ft.+C.=1.15 ft.=1272.62 ft.=19.28 chs.+48.45 chs.

48.45 Stadia point,
Angle 3° +, Rod 11.00 ft. single=1100 ft.× .9973=1097.03 ft.+C.=1.15 ft.=1098.18 ft.=16.64 chs.+48.45 chs.=65.09 chs.

54.00 Bottom of dry ravine, course SW. about 100 ft. deep.

65.09 Stadia point, thence by tape measurement.

68.00 Top of spur, slope S. 100 ft. above bottom of ravine.

9000 ft. 80.00 Comes in dense aspen timber and brush.

I advance this cor.
Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, pine, pinon and aspen timber; oak and aspen brush.

223rd mile

S. 89° 57' E. on the tangent to the parallel.

15.00 Wagon road from Tercio to Vermejo bears N. and S.

35.00 Leave timber, bears NE. and SW.
Difference between measurements of 68.67 chs. by 2 sets of chainmen is 6 lks. position of middle point.
By 1st set 68.70 chs.
By 2nd set 68.64 chs.; the mean of which is 68.67 chs. + Stadia 51.33 chs. = 120.00 chs. — 80.00 chs. = 40.00 chs. on 223rd mile.

9500 ft. 40.00 N. 23 lks. — Correction 120 lks. S. = 106 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 22nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 22.5 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
East Spanish Peak bears N. 11° 20' E.
Vermejo Peak bears S. 44° 05' W.
A pine tree 18 ins. dia. bears N. 55° W. 166 lks. dist. marked Colo., 222.5 M., B.T.
A pine tree 14 ins. dia. bears N. 16° W. 234 lks. dist. marked Colo., 222.5 M., B.T.
A pine tree 16 ins. dia. bears S. 50¾° E. 428 lks. dist. marked N.M., 222.5 M., B.T.
This cor. stands on top of round hill.
Alt. 9500 ft.
Temp. 82°.
Vegetation, pine, spruce and aspen timber; oak, and aspen brush.

50.00 Enter pine and aspen timber, bears N. and S.

80.00 Comes on steep E. slope, in dense brush.
I advance this cor.
Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, and aspen brush.

——224th mile——
S. 89° 56′ E. on the tangent to the parallel.
Ascend along steep N. slope.
24.00 Top of high ridge bears SE. and SW.
Difference between measurements of 66.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 66.02 chs.
By 2nd set 65.98 chs.; the mean of which is 66.00 chs.—40.00 chs. from last cor. to 80.00 chs. point=26.00 chs. on the 224th mile.
9500 ft. 26.00 N. 30 lks.—Correction 148 lks. S.=118 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 223rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 223.325 M. stamped in the center. Raised a mound of stone 5 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 7½° E. 152 lks. dist. marked Colo., 223.325 M., B.T.
A pine tree 14 ins. dia. bears S. 52¼° E. 25 lks. dist. marked N.M., 223.325 M., B.T.
A pine tree 12 ins. dia. bears S. 24½° W. 48 lks. dist. marked N.M., 223.325 M., B.T.
A pine tree 26 ins. dia. bears N. 16½° W. 176 lks. dist. marked Colo., 223.325 M., B.T.
Thence along N. slope in dense timber and brush.
80.00 Comes in dense brush on N. slope.
I advance this cor.; ascend.
Land, rolling and broken.
Soil, clay loam, 3rd rate.

Vegetation, pine, spruce and aspen timber; oak and aspen brush.

——225th mile——

S. 89° 55′ E. on the tangent to the parallel. Ascend along N. slope. Head of ravine about 800 ft. deep, that runs N. to the Purgatory River at Tercio about 5 miles dist. Difference between measurements of 66.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,

By 1st set 66.02 chs.

By 2nd set 65.98 chs.; the mean of which is 66.00 chs.—54.00 chs., the dist. from last cor. to 80.00 chs. point=12.00 chs. on 225th mile.

9450 ft. 12.00 N. 39 lks.—Correction 170 lks. S.=131 lks. S from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 224th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 224.15 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pine tree 30 ins. dia. bears N. 8° E. 50 lks. dist. marked Colo., 224.15 M., B.T.

A pine tree 12 ins. dia. bears S. 18° E. 16 lks. dist. marked N.M., 224.15 M., B.T.

A pinon tree 12 ins. dia. bears S. 45° W. 84 lks. dist. marked N.M., 224.15 M., B.T.

No trees within limits to NW.

This cor. on steep slope near top of ridge. The town of Tercio can be seen from it, about 5 miles to the N.

Alt. 9450 ft.

Temp. 85°.

Ascend.

15.00 Top of ridge bears NE. and S. about 10 chs.; then W.

Thence by stadia measurement,

Angle 4°—, Rod 12.00 ft. double—2400 ft.×

.9951=2388.24 ft.+C.=1.15 ft.=2389.39 ft.=36.20 chs.+15.00 chs.—51.20 chs.

40.00 Head of gulch, course SE.

51.20 Stadia point, thence by tape measurement,

53.00 On spur, slope SE.

Difference between measurements of 31.80 chs. by 2 sets of chainmen is 2 lks., position of middle point,

By 1st set 31.81 chs.

By 2nd set 31.79 chs.; the mean of which is 31.80 chs.+36.20 chs., stadia+12.00 chs.=80.00 chs.

9150 ft. 80.00 N. 49 lks.—Correction 191 lks. S.=142 lks. S. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 225th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 225 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A pine tree 18 ins. dia. bears N. 48½° E. 56 lks. dist. marked Colo., 225 M., B.T.

A pine tree 16 ins. dia. bears S. 70° W. 114 lks. dist. marked N.M., 225 M., B.T.

A pine tree 12 ins. dia. bears N. 0¾° W. 87 lks. dist. marked Colo., 225 M., B.T.

No tree suitable SE.

This cor. stands on W. slope in oak and scattering pine timber

Land, rough and broken.

Soil, clay loam and rocky, 3rd rate.

Vegetation, pine and pinon timber oak and aspen brush.

Alt. 9150 ft.

Temp. 83°.

——226th mile——

S. 89° 55′ E. on the tangent to the parallel.

Over rolling ground.

22.00 Dry gulch, course SE.

40.00 Top of spur, slope SE.; descend along W. slope.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

8900 ft. 80.00 N. 62 lks.—Correction 216 lks. S.—154 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 226th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N.M. on S. and 226 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 18 ins. dia. bears S. 11° E. 186 lks. dist. marked N.M., 226 M., B.T.
A pine tree 12 ins. dia. bears N. 28° W. 130 lks. dist. marked Colo., 226 M., B.T.
This cor. on steep W slope of Lorencito Canon.
Land, broken.
Soil, clay loam, and rocky, 3rd rate.
Vegetation, pine, pinon and aspen timber; oak and aspen brush.
Alt. 8900 ft.
Temp. 80°.

July 4th, 1903.

I examine the transit and compare the steel tapes with the standard, find all in adjustment and tapes of correct length.

227th mile

July 3rd, 1903.

S. 89° 54′ E. on the tangent to the parallel.
Descend along steep W. slope.

8500 ft. 50.00 Bottom of Lorencito Canon, stream 2 lks. wide, course NE.

56.74 On flat bottom of canon, old saw-mill site.
Stadia measurement from this point,
Angle 8°—Rod° 7.66 double=1532 ft.×
.9806=1502.28 ft.+C.=1.14 ft.=1503.42 ft.=
22.78 chs.+56.74 chs.=79.52 chs.

63.00 Same stream, course SW.; ascend.

79.52 Stadia point, on rocky spur, slope NW.
Difference between measurements of 57.22 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 57.24 chs.
By 2nd set 57.20 chs.; the mean of which is 57.22 chs.+22.78 chs.=80.00 chs.

8700 ft. 80.00 N. 76 lks.—Correction 240 lks. S.=164 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 227th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 227 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 14 ins. dia. bears N. 48° E. 84 lks. dist. marked Colo., 227 M., B.T.
A pine tree 12 ins. dia. bears S. 21° E. 105 lks. dist. marked N.M., 227 M., B.T.
A spruce tree 14 ins. dia. bears S. 54¾° W. 77 lks. dist. marked N.M., 227 M., B.T.
A spruce tree 14 ins. dia. bears N. 43½° W. 81 lks. dist. marked Colo., 227 M., B.T.
Land, broken and rocky.
Soil, sandy and rocky, 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, aspen and willow brush.
Alt. 8700 ft.
Temp. 79°.

——228th mile——

S. 89° 53′ E. on the tangent to the parallel.
Descend.

2.50 Dry ravine, 50 ft. deep, course SE.; ascend.

17.00 Top of spur, slope SE.; descend along south slope.

8400 ft. 75.41 Top of spur, slope SE.
Thence by stadia measurement,
Level, Rod 9.38 double = 1876 ft. + C. = 1.15 ft. = 1877.15 ft. = 28.44 chs. + 75.41 chs. = 103.85 chs. — 80.00 chs. = 23.85 chs. on the 229th mile.

80.00 Comes on rough, brushy slope of canon.
I advance this cor.
Land, rough and broken.
Soil, rocky, 3rd rate.
Vegetation, pine, spruce and aspen timber. Oak and aspen brush.

—229th mile—

S. 89° 53′ E. on the tangent to the parallel.
Descend.

14.00 Bottom of dry canon, about 300 ft. deep, course S.; ascend.

23.85 Stadia point,
Difference between measurements of 75.56 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 75.59 chs.
By 2nd set 75.53 chs.; the mean of which is 75.56 chs. + stadia 28.44 chs. = 104.00 chs. — 80.00 chs. = 24.00 chs. on 229th mile.

8550 ft. 24.00 N. 96 lks. — Correction 272 lks. S. = 176 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 228th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 228.3 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 4 ins. dia. bears N. 34½° E. 93 lks. dist. marked Colo., 228.3 M., B.T.
A pine tree 10 ins. dia. bears S 85° E. 78 lks. dist. marked N.M., 228.3 M., B.T.

A pine tree 7 ins. dia. bears N. 33 W. 81 lks. dist. marked Colo., 228.3 M., B.T.
No other tree within limits.
Land, rough and broken.
Soil, rocky, 3rd rate.
Vegetation, pine, pinon and cedar timber; oak and aspen brush.
Alt. 8550 ft.
Temp. 82°.
This cor. stands on south slope, rocky point of spur, about 300 ft. above bottom of Lorencito Canon.

49.00 On spur, slope S., stadia measurement from this point,
Angle 2° +, Rod 12.00 ft., double =2400 ft. × .9988=2397.12 ft.+C.=1.15 ft.=2398.27 ft.=36.33 chs.+49.00 chs.=85.33 chs.—80.00 chs =5.33 chs. on 230th mile.

60.00 Dry rocky canon, course S.; accept.

80.00 Comes on steep W. slope.
I advance this cor.
Land, rough, broken and rocky.
Soil, 3rd rate, rocky.
Vegetation, pine, pinon and cedar timber; oak and aspen brush.

——230th mile——

S. 89° 52′ E. on the tangent to the parallel.

5.33 Stadia point.
Difference between measurements of 25.67 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 25.68 chs.
By 2nd set 25.66 chs.; the mean of which is 25.67 chs.+stadia 36.33 chs.=62.00 chs.—56.00 chs. (Dist. from last cor to 80.00 chs. point)=6.00 chs on 230th mile.

8550 ft. 6.00 N. 111 lks.—Correction 292 lks. S.=181 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 229th mile cor. A brass cap on the top of

the pipe has raised letters Colo. on N., N.M. on S. and 229.075 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 18 ins. dia. bears N. 30½° E. 46 lks. dist. marked Colo., 229.075 M., B.T.
A pine tree 8 ins. dia. bears S. 22½° E. 47 lks. dist. marked N.M., 229.075 M., B.T.
A pine tree 5 ins. dia. bears S. 44½° W. 108 lks. dist. marked N.M., 229.075 M., B.T.
A pine tree 18 ins dia. bears N. 36° W. 67 lks. dist. marked Colo., 229.075 M., B.T.
East Spanish Peak bears N. 2° W.
Alt. 8550 ft.
Temp. 86°.

7.00 Top of ridge bears NE. and SW.
Stadia measurement from this point,
Angle 5° —, Rod 13.00 ft. double=2600 ft.× .9924=2580.28 ft.+C.=1.14 ft.=2581.42 ft.=39.11 chs.+7.00 chs.=46.11 chs.

46.11 Stadia point in hollow, sloping N.; ascend.

75.00 Top of ridge bears NE. and SW.
Descend gradually, along SE. slope.
Difference between measurements of 34.89 chs. by 2 sets of chainmen is 2 lks., position of middle point
By 1st set 34.90 chs.
By 2nd set 34.88 chs.; the mean of which is 34.89 chs.+39.11 chs., stadia=74.00 chs. from the last cor+6.00 chs.=80.00 chs.

8375 ft. 80.00 N. 129 lks.—Correction 314 lks. S.=185 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 6 ins. in the ground to bed rock for 230th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 230 M. stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post. Pits impracticable.
A pine tree 18 ins. dia. bears N. 20¼° E. 133 lks. dist. marked Colo., 230 M., B.T.

A pine tree 10 ins. dia. bears S. 78½° E. 114 lks. dist. marked N.M., 230 M., B.T.
A pine tree 16 ins. dia. bears S. 69¾° W. 118 lks. dist. marked N.M., 230 M., B.T.
A pine tree 16 ins. dia. bears N. 42½° W. 100 lks. dist. marked Colo., 230 M., B.T.
Land, broken and rough.
Soil, rocky, clay loam, 3rd rate.
Vegetation, pine and aspen timber; oak and aspen brush.
Alt. 8375 ft.
Temp. 86°.

——231st mile——

S. 89° 52' E. on the tangent to the parallel.

12.00 Thence by stadia measurement,
Angle 2°—, Rod 12.95 ft. double=2590 ft.×.9988=2586.89 ft.+C. 1.15 ft.=2588.04 ft.=39.21 chs.+12.00 chs.=51.21 chs.

47.00 Head of rocky canon about 200 ft. deep, course S.

51.21 Stadia point, on rocky bluff, bears N. and S.
Thence by tape across flat spur.

58.50 On E. edge of rocky spur, bears NW. and SE.
Stadia from this point; descend.
Angle 11°—, Rod 6.60 ft. double=1320 ft.×.9636=1271.95 ft.+C.=1.13 ft.=1273.08 ft.=19.29 chs.+58.50 chs.=77.79 chs.

74.00 Bottom of dry ravine, course SE.; 350 ft. deep, below last stadia point; ascend.

77.79 Stadia point, on low spur, slope S.
Thence by tape, along brushy south slope.
Difference between measurements of 21.50 chs. by 2 sets of chainmen is 2 lks. position of middle point,
By 1st set 21.51 chs.
By 2nd set 21.49 chs.; the mean of which is 21.50 chs.+58.50 chs., stadia=80.00 chs.

7950 ft. 80.00 N. 150 lks.—Correction 339 lks. S.=189 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

Ranges at the bottom 2 ft. in the ground for 231st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 231 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 7° E. 129 lks. dist. marked Colo. 231 M., B.T.
A pine tree 12 ins. dia. bears S. 76½° E. 211 lks. dist. marked N.M., 231 M., B.T.
A pine tree 14 ins. dia. bears N. 52° W. 243 lks. dist. marked Colo., 231 M., B.T.
No tree within limit SW.
This cor. in oak brush on S. slope about 4 chs. N. of Lorencito creek.
Land, rough and broken.
Soil, rocky, clay loam, 3rd rate.
Vegetation, pine, cedar and aspen timber.
Oak and aspen brush.
Alt. 7950 ft.
Temp. 85°.

232nd mile—

S. 89° 51' E. on the tangent to the parallel.
Descend along brushy south slope.

7450 ft.	30.00	Bottom of Lorencito Canon, water in holes in bend, course SW. to SE.
	40.00	Low point of spur, slope S.
	54.00	Same stream, course NE.
		Ascend along N. slope.
7550 ft.	76.00	Top of spur, slope N.; descend.
	79.00	Bottom of ravine from S.; road bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
7450 ft.	80.00	N. 172 lks.—Correction 264 lks. S.=192 lks. S. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 232nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 232 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high, around the post. Pits impracticable.

A pine tree 16 ins. dia. bears N. 4¾° W. 480 lks. dist. marked Colo., 232 M., B.T.

A pine tree 8 ins. dia. bears S. 41½° W. 423 lks. dist. marked N.M., 232 M., B.T.

No other trees within limits.

This cor. stands in mouth of canon from the S.

Ruins of old lumber camp in main canon about 10 chs. N.

Land, rough and broken.

Soil, rocky, clay and sand, 3rd rate.

Vegetation, pine, cedar and aspen timber; oak and aspen brush.

On the afternoon of May 12th, 1903, I adjust the transit in all its parts.

At the point for the 232nd mile cor., at 4h 8m A. M. l.m.t. I observe Polaris at eastern elongation, May 13th, 1903, and mark a point in the line so found on a plug driven in the ground N. of my station.

At 7h A. M. May 13th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 13° 30′ W.

This gives magnetic variation 13° 30′ E.

I now lay off an angle 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights

was taken, with the telescope reversed at each sight.

N. B.—These observations on Polaris for meridian were taken and tangent cut out through timber and brush, before the corrections and subsequent adjustment of line was made, hence the difference in date.

—233rd mile—

East on the tangent to the parallel.

	1.00	Stream 2 lks. wide in bottom of ravine, course NE. about 10 chs. to where it joins the Lorencito canon; ascend.
	10.00	Top of spur about 50 ft. high, slope N.
	23.00	Dry gulch, course N.
	37.13	On spur, slope N., stadia measurement, Angle 4 +, Rod 12.40 single=1240 ft. .9951=1233.92 ft.+C.=1.15 ft.=1235.07 ft. 18.71 chs.+37.13 chs.=55.84 chs.
7650 ft.	55.84	Stadia point on high spur, slope NE. Angle 3 —, Rod 8.30 ft. double=1660 ft. .9973=1655.52 ft.+C.=1.15 ft.=1656.67 ft. 25.10 chs.+55.84 chs.=80.94 chs.—.94 chs. 80.00 chs.
	73.00	Wagon road in canon, bears N. and S
7450 ft.	76.00	Stream 3 lks. wide in bottom of canon, course N. about ¼ mile to Lorencito Canon, which there turns to NE.
	78.00	Foot of hill bears N. and S.; ascend.
7550 ft.	80.00	N. .76 of link—Correction 388 lks. S.=387.24 lks. S. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 233rd mile cor. A brass cap on the top of the pipe has raised letters Colo on N., N.M. on S. and 233 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable A cedar tree 12 ins. dia. bears N. 9 W 24 lks. dist. marked Colo., 233 M., B.T. A pine tree 14 ins. dia. bears S. 100 lks. dist. marked N.M., 233 M., B.T.

No other trees within limit.
Land, rough and broken.
Soil, sand and clay, 3rd rate.
Vegetation, pine, cedar and aspen timber
Oak and aspen brush.
Alt. 7550 ft.
Temp. 84°.

234th mile.

S. 89° 59' E. on the tangent to the parallel
Ascend in dense oak brush.

6.00 Top of spur, slope SW. 200 ft. above gulch.
Thence along S. slope in dense brush.

7600 ft. 34.00 Bottom of dry ravine, course SW., ascend

7900 ft. 70.00 Top of spur, slope N., thence along N. slope
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 3 lks. Correction 413 lks. S. 410 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 234th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 234 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 8 ins. dia. bears N. 73° E. 1.5 lks. dist. marked Colo., 234 M., B.T.
A pine tree 18 ins. dia. bears S. 29½° E. 2.36 lks. dist. marked N.M., 234 M., B.T.
A pine tree 16 ins. dia. bears N. 35½° W. 42 lks. dist. marked Colo., 234 M., B.T.
No trees SW. within limit suitable for bearing trees.
This cor. stands near head of dry ravine course N.
Land, rough and broken.

Soil, rocky, clay loam, 3rd rate.
Vegetation, pine and spruce timber; oak aspen and locust brush.
Alt. 7950 ft.
Temp. 80

July 3rd, 1903.

I examine the adjustments of the transit and compare the steel tapes with the standard and find all correct and in adjustment

July 2nd, 1903

235th mile

S. 89 30 E. on the tangent to the parallel
Along N. slope, near top of ridge.
50.00 Dry canon near the head, course N.
64.24 Wagon road bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
8200 ft. 80.00 N. 7 lks. Correction 438 lks. S. 431 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 235th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M on S. and 235 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands on stony point on top of high ridge that bears SE. and SW.
A pine tree 7 ins. dia. bears N. 58½ E. 29 lks. dist. marked Colo., 235 M., B.T.
A pine tree 10 ins. dia. bears S. 34½ E. 70 lks. dist. marked N.M., 235 M., B.T.
A pine tree 8 ins. dia. bears S. 31½ W. 20 lks. dist. marked N.M., 235 M., B T

A pine tree 8 ins. dia. bears N. 61½ W. 22 lks. dist. marked Colo., 235 M., B.T.
Land, rough and broken.
Soil, rocky, clay loam; 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.
Much of the timber has been cut for rail road ties, and mining timbers.
Alt. 8200 ft.
Temp. 83°.

236th mile

S. 89° 58' E. on the tangent to the parallel. Descending along N. slope.

9.50 On spur, slope N.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point.
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

8025 ft. 80.00 N. 12 lks. Correction 463 lks. S.= 451 S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 236th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 236 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 24 ins. dia. bears N. 9½ E. 336 lks. dist. marked Colo., 236 M., B.T.
A pine tree 10 ins. dia. bears S. 66½ E. 242 lks. dist. marked N.M., 236 M., B.T.
A pine tree 16 ins. dia. bears N. 12½ W. 296 lks. dist. marked Colo., 236 M., B.T.
No tree SW. within limit.
This cor. stands on ridge at low point, bears N. and S.
Land, rough and broken.
Soil, sand and clay, 3rd rate.

Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.
Alt. 8025 ft.
Temp. 84°.

237th mile

S. 89° 57' E. on the tangent to the parallel.

9.00 Thence by stadia measurement,
Angle 3° —, Rod 11.10 ft. single=1110 ft.+ 9973=1107.00 ft.+C. -1.15 ft.=1108.15 ft.= 16.79 chs.+9.00 chs.=25.79 chs.

20.00 Bottom dry ravine, course NE.

25.79 Top of spur, slope N.
Angle 00° Rod 10.00 ft. single=1000 ft.+C. -1.15 ft.=1001.15 ft.=15.17 chs.+25.79 chs. =40.96 chs.

38.00 Bottom same ravine, 150 ft. deep, course SE.

40.96 Stadia point, on ridge bears NW. and SE. Descend.

7800 ft. 80.00 Comes in ravine about 150 ft. deep, course N.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.

238th mile

S. 89° 57' E. on the tangent to the parallel.
Ascend through timber and brush.
Difference between measurements of 56.04 chs. by 2 sets of chainmen is 4 lks., position of middle point.
By 1st set 56.06 chs.
By 2nd set 56.02 chs.; the mean of which is 56.04 chs.+31.96 chs., stadia=88.00 chs.— 80.00 chs.=8 chs. on the 238th mile.

7950 ft. 8.00 N. 20 lks.—Correction 489 lks. S.=469 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for

237th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N.M. on S. and 237.1 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 24° E. 82 lks. dist. marked Colo., 237.1 M., B.T.
A pine tree 8 ins. dia. bears S. 54° E. 58 lks. dist. marked N.M., 237.1 M., B.T.
A pine tree 10 ins. dia. bears S. 33¾° W. 87 lks. dist. marked N.M., 237.1 M., B.T.
A pine tree 8 ins. dia. bears N. 11° W. 57 lks. dist. marked Colo., 237.1 M., B.T.
Alt. 7950 ft.
Temp. 84°.
Ascend.

13.00 Top of spur, slope N.
Thence by stadia measurement,
Angle 2° + Rod 11.50 double = 2300 ft. × .9988 = 2297.24 ft. + C. = 1.15 ft. = 2298.39 ft. = 34.82 chs. + 13.00 chs. = 47.82 chs.

18.00 Bottom dry ravine, 150 ft. deep, course N.

23.00 Top of spur, slope N

33.00 Bottom dry ravine 200 ft. deep, course NW.
Mexican cabin and water hole, about 20 chs. NW.
Ascend.

47.82 On high spur, slope N., thence by tape measurement, along N. slope.

70.00 Top of ridge bears NE. and SW.
Difference between measurements of 37.18 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 37.19 chs.
By 2nd set 37.17 chs.; the mean of which is 37.18 chs. + 34.82 chs., stadia = 72.00 chs. from last cor. + 8.00 chs. = 80.00 chs.

7930 ft. 80.00 N. 27 lks.—Correction 512 lks. S. = 485 lks. S from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for the 238th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S., and 238 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 54° E. 87 lks. dist. marked Colo., 238 M., B.T.
A pine tree 16 ins. dia. bears S. 44° E. 111 lks. dist. marked N.M., 238 M., B.T.
A pine tree 24 ins. dia. bears S. 42° W. 7 lks. dist. marked N.M., 238 M., B.T.
A pine tree 24 ins. dia. bears N. 80° W. 122 lks. dist. marked Colo., 238 M., B.T.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.
Alt. 7930 ft.
Temp. 84°.

—239th mile—

S. 89° 56' E. on the tangent to the parallel.

5.00 Dry gulch, course SE.; ascend.
16.00 Top of ridge bears NW. and SE.; descend.
45.00 Bottom of ravine, course NE.; ascend.
7900 ft. 76.00 Top of spur, slope NE.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point,
By 1st set 80.07 chs.
By 2nd set 79.93 chs.; the mean of which is 80.00 chs.
7720 ft. 80.00 N. 37 lks.—Correction 537 lks. S.=500 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 239th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 239th mile stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 14 ins. dia. bears N. 51° E. 143 lks. dist. marked Colo., 239 M. B.T.
A pine tree 30 ins. dia. bears S. 63° E. 41 lks. dist. marked N.M., 239 M., B.T.
A pine tree 10 ins. dia. bears S. 35¾° W. 17 lks. dist. marked N.M., 239 M., B.T.
A pine tree 12 ins. dia. bears N. 27° W. 126 lks. dist. marked Colo., 239 M., B.T.
Land, rolling and broken.
Soil, rocky, 3rd rate.
Vegetation, pine, spruce and aspen timber; locust, oak and aspen brush.
Alt. 7720 ft.
Temp. 84°.

——240th mile——

S. 89° 55' E. on the tangent to the parallel. Descend.

8.00 Stadia measurement from here,
Angle 5°—, Rod 11.10 ft. double=2200 ft. × .9924=2203.13 ft.+C.=1.14 ft.=2204.27 ft.=33.39 chs.+8.00 chs.=41.39 chs.

7420 ft. 34.00 Bottom of ravine about 300 ft. below cor., stream 3 lks. wide, course SE. Mexican houses just north of line.

34.50 Wagon road bears NW. and SE.; ascend.

41.39 Stadia point, thence by tape measurement.

7600 ft. 48.00 Top of spur slope S.; descend along S. slope.

80.00 Comes on steep hillside.
I advance this cor.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, scattering pine and cedar timber; oak, aspen and locust brush.

——241st mile——

S. 89° 55' E. on the tangent to the parallel.

7380 ft. 5.00 Bottom of canon, stream 3 lks. wide, course NE.

	5.50	Wagon road, bears NE. and SW.; ascend.
7450 ft.	20.00	Top of spur, slope NE.; descend.
		Difference between measurements of 72.61 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 72.64 chs.
		By 2nd set 72.78 chs.; the mean of which is 72.61 chs.+33.39 chs., stadia 106.00 chs.-80.00 chs.=26.00 chs. on 241 st mile.
7430 ft.	26.00	N. 53 lks—Correction 568 lks. S.—515 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 240th mile cor. A brass cap on the top of the pipe has raised letters Colo., on N., N.M. on S. and 240.325 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 8 ins. dia. bears N. 42° W. 189 lks. dist. marked Colo., 240.325 M., B.T.
		A pine tree 14 ins. dia. bears N. 4° 51' W. 529 lks. dist. marked Colo., 240.325 M., B.T.
		No other trees suitable for bearing trees.
		Alt. 7430 ft.
		Temp. 84°.
		Descend.
7380 ft.	32.00	Bottom of Long Canon. Wagon road bears N. and S.
	35.50	R.R. track for timber, Trinidad to Catskill, bears NE. and SW.
	37.00	Stream 10 lks. wide, bottom of Long Canon, course NW.
		Ascend.
	42.00	Top of spur, slope N.; descend.
	55.00	Bottom of ravine, stream 2 lks. wide, gours. V.
		Ascend steep S. slope.
7700 ft.	75.00	Top of steep, brushy spur, slope S.; descend.
		Difference between measurements of 54.00

chs. by 2 sets of chainmen is 4 lks., position of middle point.
By 1st set 54.02 chs.
By 2nd set 53.98 chs.; the mean of which is 54.00 chs. =26.00 chs. =80.00 chs.

7650 ft. 80.00 N. 62 lks.—Correction 586 lks. S.=524 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 241st mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 241 M. stamped in the center: Raised a mound of stone 5 ft. base 2 ft. high around the post Pits impracticable.
A pine tree 14 ins. dia. bears S. 35½ E. 232 lks. dist. marked N.M., 241 M., B.T.
No other trees within limit.
This cor. stands in dense oak brush on south slope.
Land, rough and broken.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, scattering pine timber; oak and locust brush.
Alt. 7650 ft.
Temp. 83.

——242nd mile——

S. 89° 54' E. on the tangent to the parallel. Descend.

7550 ft. 10.00 Dry ravine, course S.; ascend.

7900 ft. 40.00 Top of high ridge, bears NE. and NW.
Thence along S. slope near top of ridge.

78.00 Top of spur, slope S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point.
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 76 lks.—Correction 611 lks. S.=535 lks. S. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 242nd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on E., N.M. on S. and 242 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 8 ins. dia. bears N. 33° E. 131 lks. dist. marked Colo., 242 M., B.T.
A pine tree 16 ins. dia. bears S. 36½° E. 68 lks. dist. marked N.M., 242 M., B.T.
A pine tree 20 ins. dia. bears S. 66° W. 32 lks. dist. marked N.M., 242 M., B.T.
A pine tree 20 ins. dia. bears N. 52° W. 117 lks. dist. marked Colo., 242 M., B.T.
Land, rough and broken.
Soil, rocky, 3rd rate.
Vegetation, pine and spruce timber.
Oak and locust brush.
Alt. 7950 ft.
Temp. 80°.

——243rd mile——

S. 89° 53′ E. on the tangent to the parallel.
Along south slope.

8000 ft.	22.50	On top of ridge bears N. and S.
		Thence by stadia
		Angle 2°—, Rod 7.90 double=1580 ft.×.9988 =1578.10 ft.+C.=1.15 ft.=1579.25 ft.= 23.93 chs.+22.50 chs.=46.43 chs.
	27.00	Head of canon, course NE.
	34.00	Top of spur, slope N.
	43.00	Bottom of ravine, 150 ft. deep, course N.; ascend.
	46.43	Stadia point on spur, slope N.
		Angle 00° Rod 10.00 ft. double=2000 ft.+ C.=1.15 ft.=2001.15 ft.=30.32 chs.+46.43 chs.=76.75 chs.
7800 ft.	63.00	Bottom of canon 200 ft. deep, course N.; ascend.

76.75 Stadia point on spur, slope N.
Thence by tape measurement,
8050 ft. 80.00 N. 92 lks.—Correction 635 lks. S. 543 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 243rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 243 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 12 ins. dia. bears N. 40° E. 14 lks. dist. marked Colo., 243 M., B.T.
A pine tree 8 ins. dia. bears S. 33° E. 24 lks. dist. marked N.M., 243 M., B.T.
A pine tree 8 ins. dia. bears S. 41° W. 107 lks. dist. marked N.M., 243 M., B.T.
A pine tree 16 ins. dia. bears N. 21° 30' W. 30 lks. dist. marked Colo., 243 M., B.T.
Land, rough and broken.
Soil, rocky and sandy, 3 rd rate.
Vegetation, pine, spruce and cedar timber; oak, aspen and locust brush.
Alt. 8050 ft.
Temp. 75°.

July 2nd, 1903

I examine the adjustments of the transit and compare the steel tapes with the standard. Find all correct and in adjustment.

July 1st, 1903.

244th mile

S. 89° 53' E. on the tangent to the parallel.
14.00 Bottom of dry ravine 150 ft. deep, course N.
25.00 Top of spur, slope N.
57.00 Stadia measurement from this point,
Angle 00° Rod 12.30 double = 2460 ft. + C. = 1.15 ft. = 2461.15 ft. = 37.29 chs. + 57.00 chs. = 94.29 chs. — 80.00 chs. = 14.29 chs. on the 245th mile.

7850 ft.	80.00	Comes in canon, course N. about 200 ft. deep. I advance this cor. Land, rough and broken. Soil, sand and clay, 3rd rate. Vegetation, pine, cedar and aspen timber. Oak, aspen and locust brush.

245th mile

		S. 89° 52′ E. on the tangent to the parallel. Ascend.
	14.29	Stadia point on sharp spur, slope E. Difference between measurements of 57.41 chs. by 2 sets of chainmen is 4 lks., position of middle point By 1st set 57.43 chs. By 2nd set 57.39 chs.; the mean of which is 57.41 chs.+37.29 chs., stadia=94.70 chs.—80.00 chs.=14.70 chs. on the 245th mile.
8050 ft.	14.70	N. 114 lks.—Correction 660 lks. S.=546 lks. S. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 244th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N.M. on S. and 244,184 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. No trees suitable for bearing trees. East one of Spanish Peaks bears N. 30° 15′ W. NW. face of Fishers' Peak bears N. 54½° E. Alt. 8050 ft. Temp. 70°. Thence by stadia measurement, Angle 7′—Rod 8.50 ft. double=1700 ft.×.9851=1674.67 ft.+C.=1.14 ft.=1675.81 ft.=25.39 chs.+14.70 chs.=40.09 chs.
7900 ft.	30.00	Bottom of ravine about 250 ft. deep, stream 2 lks. wide, course N.; ascend.

7950 ft.	40.09	Stadia point on spur, slope N.; coal cropping, and spring about 2 chs. N.
		Angle 8° + Rod 11.00 ft. double=22.00 ft.× .9806=2157.32 ft.+C.=1.14 ft.=2158.46 ft.= 32.70 chs.+40.09 chs.=72.79 chs.
7900 ft.	45.00	Bottom of ravine stream 2 lks. wide, course NW.
		Ascend.
	72.79	Stadia point, thence by tape measurement.
8150 ft.	80.00	N. 129 lks.—Correction 685 lks. S.=556 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 245th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 245 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pinon tree 8 ins. dia. bears S. 67° W. 38 lks. dist. marked N.M., 245 M., B.T.
		A pinon tree 8 ins. dia. bears N. 15° W. 53 lks. dist. marked Colo., 245 M., B.T.
		No other trees suitable for bearing trees.
		This cor. stands on steep south slope, in brush.
		Land, rough and broken.
		Soil, sandy loam, 3rd rate.
		Vegetation, pine, pinon and cedar timber; oak, aspen and locust brush.
		Alt. 8150 ft.
		Temp. 83°.

——246th mile——

S. 89° 52′ E. on the tangent to the parallel.

Descend.

Stadia measurement,

Angle 2° +, Rod 12.00 ft. double=2400 ft.× .9988+2397.12 ft.+C.=1.15 ft =2398.27 ft.= 36.33 chs.

	12.00	Head of ravine, course SE.; ascend.
8200 ft.	36.33	On ridge bears NW. and SE.

Thence by tape measurement.
Descend.

7800 ft. 80.00 Bottom of dry ravine, about 300 ft. deep, course NW.
I advance this cor.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, pine, pinon and cedar timber.
Oak, aspen and locust brush.

——247th mile——

S. 89° 51′ E. on the tangent to the parallel.
Ascend.

13.00 On spur, lsope S.; thence along S slope.
Difference between measurements of 63.67 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 63.70 chs.
By 2nd set 63.64 chs.; the mean of which is 63.67 chs.+36.33 chs. stadia=100.00 chs.—80.00 chs.=20.00 chs., on 247th mile.

8000 ft. 20.00 N. 155 lks.—Correction 716 lks. S.=561 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 246th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 246.25 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 18 ins. dia. bears N. 42½° E. 19 lks. dist. marked Colo., 246.25 M., B.T.
A pine tree 16 ins. dia. bears S. 49° E. 85 lks. dist. marked N.M., 246.25 M., B.T.
A pine tree 17 ins. dia. bears S. 81° W. 96 lks. dist. marked N.M., 246.25 M., B.T.
A pine tree 19 ins. dia. bears N. 27½° W. 92 lks. dist. marked Colo., 246.25 M., B.T.

8100 ft. 27.00 Top of ridge bears NW. and SE.
Descend along N. slope.

60.00 Head of ravine, course N.; ascend.

80.00 Comes in dense brush.

I advance this cor.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, pine and cedar timber; oak, aspen and locust brush.

——248th mile——

S. 89° 50' E. on the tangent to the parallel. Ascend.

8100 ft.	10.00	Top of ridge bears N. and S.; descend.
7950 ft.	25.00	Bottom of ravine, course NE. Wagon road and telephone line bears NE. and SW. Trinidad to Raton.
	25.30	Stream 2 lks. wide, course NE.; ascend.
	30.00	Top of spur, slope N., 50 ft. high; descend.
	35.00	Dry gulch, course N.; ascend.
	43.50	Top of spur, slope N.

Difference between measurements of 104.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,
By 1st set 104.50 chs.
By 2nd set 103.95 chs.; the mean of which is 104.00 chs.; from last cor. +20.00 chs.= 124.00 chs. —80.00 chs. —44.00 chs. on 248th mile.

8100 ft.	44.00	N. 185 lks. Correction 747 lks. S. —562 lks. S. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 247th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 247.55 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
A pine tree 14 ins. dia. bears N. 50½° E. 87 lks. dist. marked Colo., 247.55 M., B.T.
A pine tree 14 ins. dia. bears S. 58° E. 59 lks. dist. marked N.M., 247.55 M., B.T.
A pine tree 16 ins. dia. bears S. 36¾° W. 32 lks. dist. marked NM., 247.55 M., B.T.
A pine tree 12 ins. dia. bears N. 31° W. 86 lks. dist. marked Colo., 247.55 M. B.T.

Descend.

55.00 Bottom of ravine, 150 ft. deep, course N.; ascend.

80.00 Comes in dense brush.
I advance this cor.
Land, rough and broken.
Soil, rocky and sandy loam, 3rd rate.
Vegetation, pine and spruce timber.
Oak and aspen and locust brush.

249th mile

S. 89° 50' E. on the tangent to the parallel.
Over ravines and spurs, drainage N.

20.00 Bottom of ravine 100 ft. deep, course N.
Difference between measurements of 62.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 62.02 chs.
By 2nd set 61.98 chs.; the mean of which is 62.00 chs., from last cor. +44.00 chs.=106.00 chs.—80.00 chs.=26.00 chs. on the 249th mile.

8050 ft. 26.00 N. 203 lks.—Correction 766 lks. S.=563 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 248th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 248.325 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 47° E. 43 lks. dist. marked Colo., 248.325 M., B.T.
A pine tree 18 ins. dia. bears S. 50° E. 24 lks. dist. marked N.M., 248.325 M., B.T.
A pine tree 18 ins. dia. bears S. 40° W. 55 lks. dist. marked N.M., 248.325 M., B.T.
A pine tree 16 ins. dia. bears N. 35½° W. 58 lks. dist. marked Colo., 248.325 M., B.T.
Alt. 8050 ft.
Temp. 84°.

Thence across spurs and gulches.
Drainage to the north.

80.00 Comes in dense brush.
I advance this cor.
Land, rough and broken.
Soil, sandy and stony, 3rd rate.
Vegetation, pine, spruce and cedar timber; oak, aspen and locust brush.

——250th mile——

S. 89° 49′ E. on the tangent to the parallel.
Along N. slope, crossing gulches.

17.00 Bottom of ravine, about 200 ft. deep, course N. about 10 chs., then NW.; ascend.

8470 ft. 41.00 Top of high ridge bears N. and S.; descend.
Difference between measurements of 98.00 chs. by 2 sets of chainmen is 14 lks., position of middle point.
By 1st set 98.07 chs.
By 2nd set 97.93 chs.; the mean of which is 98.00 chs., from the last cor.+26.00 chs.=124.00 chs.—80.00 chs.=44.00 chs. on the 250th mile.

8450 ft. 44.00 N. 235 lks.—Correction 796 lks. S.=561 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 249th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N.M. on S. and 249.55 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 12 ins. dia. bears N. 36° E. 4 lks. dist. marked Colo., 249.55 M., B.T.
A pine tree 8 ins. dia. bears S. 76° E. lks. dist. marked N.M., 249.55 M., B.T.
A pine tree 14 ins. dia. bears S. 36¾° W. 133 lks. dist. marked N.M., 249.55 M., B.T.
A pine tree 12 ins. dia. bears N. 53¼° W. lks. dist. marked Colo., 249.55 M., B.T.

Alt. 8450 ft.
Temp. 84°.
Thence along S. slope.
60.00 Head of ravine, course SE.
80.00 Comes in gulch, course SE., in dense brush.
I advance this cor.
Land, rough and broken.
Soil, rocky and sandy.

251st mile

S. 89° 48′ E. on the tangent to the parallel.
Ascend along S. slope.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point.
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs., from last cor. +44.00 chs.=124.00 chs.—80.00 chs.=44.00 chs. on 251st mile.
8150 ft. 44.00 N. 262 lks.—Correction 821 lks. S.=559 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 250th mile cor. A brass cap on the top of the pipe has raised letters Colo., on N., N.M. on S., and 250.55 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pine tree 18 ins. dia. bears N. 7½° E. 60 lks. dist. marked Colo., 250.55 M., B.T.
A pine tree 16 ins. dia. bears S. 22° E. 31 lks. dist. marked N.M., 250.55 M., B.T.
A pine tree 16 ins. dia. bears S. 48½° W. 52 lks. dist. marked N.M., 250.55 M., B.T.
A pine tree 18 ins. dia. bears N. 78° W. 25 lks. dist. marked Colo., 250.55 M., B.T.
This cor. on S. slope, near top of divide.
Alt. 8150 ft.
Temp. 82°.
Ascend.

8200 ft.	52.00	Top of divide, bears NW. and SE.; ascend.
	80.00	Comes in ravine, 150 ft. deep, course NE.
		I advance this cor.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, pine, spruce and aspen timber.
		Oak, aspen and locust brush.

——252nd mile——

S. 89° 48′ E. on the tangent to the parallel.
Ascend.

	15.00	On spur, slope N.; descend.
		Difference between measurements of 69.61 chs. by 2 sets of chainmen is 6 lks., position of middle point,
		By 1st set 69.64 chs.
		By 2nd set 69.58 chs.; the mean of which is 69.61 chs., dist. from last cor. +44.00 chs.= 113.61 chs.—80.00 chs.=33.61 chs. on 252nd mile.
7800 ft.	33.61	N. 287 lks.—Correction 843 lks. S.=556 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 251st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 251.42 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands in small opening in brush on NE. slope.
		No trees within limit.
		NW. face of Fisher's Peak bears N. 16° E.
		East Spanish Peak bears N. 40° 36′ W.
		Alt. 7800 ft.
		Temp. 80°.
		Descend.
7700 ft.	39.00	Bottom of dry ravine, course N.; ascend.
8000 ft.	50.00	Top of high spur, slope N.; descend.
	80.00	Comes in dense brush.
		I advance this cor.

Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scattering pine timber; oak and locust brush.

253rd mile

S. 89° 47′ E. on the tangent to the parallel.
Difference between measurements of 62.39 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 62.41 chs.
By 2nd set 62.37 chs.; the mean of which is 62.39 chs., from the last cor. +33.61 chs.= 96.00 chs.—80.00 chs. =16.00 chs. on 253rd mile.

13.00 Bottom of ravine, course NE.

7650 ft. 16.00 N. 313 lks.—Correction 866 lks. S. =553 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 252nd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 252.2 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 24 ins. dia. bears N. 36½° E. 118 lks. dist. marked Colo., 252.2 M., B.T.
A pine tree 24 ins. dia. bears S. 51½° E. 98 lks. dist. marked N.M., 252.2 M., B.T.
No other trees within limit.

July 1st, 1903.

On May 18th, 1903, I carefully adjust the transit in all its parts.
And at the point for 252nd mile cor.,
At 3h 44m A. M., l.m.t. May 19th 1903, I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground N. of my station.
At 7h A. M., May 19th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and

mark a point in the true meridian on a plug driven in the ground North of my station.
The magnetic bearing of this meridian is N. 13° 30′ W.
This gives the magnetic variation 13° 30′ E.
I now lay off an angle of 90° from this meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

From the point for 252.2nd mile cor. I ran South 31.20 chs. and West 13.57 chs. to Darling's 80th mile cor., which I found under a wire fence, that bears E. and W. about 20 chs., west of the North end of the A. T. & S. F. R.R. Co.'s Raton tunnel.
It was a sandstone 49x12x6 ins. in a stone mound and marked C. on N., 80 M. on E., N.M. on S., 1868 on W. I retraced the Darling line to the East to the top of the high mesa, but failed to find a cor. I also retraced the line to the West, found and destroyed the cors. to and including the 92nd mile cor., which stood near timber R.R. track in Long Canon. West of this I failed to find his cors. till I reached the 114th mile.

——253rd mile——

June 30th, 1903.

East on the tangent to the parallel.

22.00 Top of spur, slope N.; descend.
26.90 Wagon road, bears N. and S.
[illegible] Dry gulch, course N.
[illegible] Atchison Topeka and Santa Fe R.R. track bears NE. and SE. about 4 chs. south of the Wottoon Station sign-board and about 30 chs. North of the N. end of the Raton tunnel.
3.35 Top of ridge bears N. and S.

Thence by stadia measurement,
Angle 6 + Rod 6.20 double=1240 ft. × .9891 =1226.48 ft. +C. =1.14 ft.=1227.62 ft.=18.60 chs. +31.35 chs.=49.95 chs.

49.95 Stadia point, thence by tape;
Difference between measurements of 45.40 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 45.41 chs.
By 2nd set 45.39 chs.; the mean of which is 45.40 chs. +18.60 chs., stadia=64.00 chs., from last cor. +16.00 chs.=80.00 chs.

7950 ft. 80.00 N. .76 of a line—Correction 882 lks. S.=881.24 lks. S. from the tangent,
Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for 253rd mile cor.
A brass cap on the top of the pipe has raised letters Colo., on N., N.M. on S. and 253 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft high around the post.
Pits impracticable.
This cor. on steep brush NW. slope.
A pinon tree 12 ins. dia. bears S. 42½° W. 247 lks. dist. marked 253 M., B.T.
No other trees within limit.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pine and pinon timber.
Oak and locust brush.
Alt. 7950 ft.
Temp. 75°.

——254th mile——

S. 89° 59' E. on the tangent to the parallel.
Ascend steep.

8450 ft. 28.00 On edge of Bartlett Mesa, bears SW. and NE.

40.00 Leave mesa bears NW. and SE.
Thence by stadia; descend.

Angle 0, Rod 13.00 ft. double=2600 ft.+C.=1.15 ft.=2601.15 ft.=39.41 chs.+40.00 chs.=79.41 chs.

8150 ft. 60.00 Hollow drains N.; ascend.

8450 ft. 79.41 Stadia point on mesa, bears NE. and SW.
Difference between measurements of 40.59 chs. by 2 sets of chainmen is 8 lks. position of middle point,
By 1st set 40.63 chs.
By 2nd set 40.55 chs.; the mean of which is 40.59 chs.+39.41 chs.=80.00 chs.

8450 ft. 80.00 N. 3 lks.—Correction 907 lks. S.=904 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 254th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 254 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
Fishers' Peak bears N. 1° W.
East Spanish Peak bears N. 42° 40′ W.
This cor. stands on the mesa.
Land, rough and broken.
Partly mesa or table land.
Soil, sandy loam and rocky, 3rd rate.
Vegetation, grass; scrub spruce and cedar along edge of cliff; oak brush on slope.
Alt. 8450 ft.
Temp. 82°.

——255th mile——

S. 89° 59′ E.—on the tangent to the parallel.
Over top of mesa.

8450 ft. 22.80 East edge of mesa, bears NW. and SE.
Thence by stadia measurement,
Angle 7°—Rod 12.80 double=2560 ft.×.9851=2521.86 ft.+C.=1.14 ft.=2523.00 ft.=38.22 chs.+22.80 chs.=61.02 chs.

	26.00	Foot of cliffs about 150 ft. high, bears NW. and SE.
		Thence descend over broken rock and through brush.
	61.02	Stadia point, thence by tape; descend.
		Difference between measurements of 41.7 chs. by 2 sets of chainmen is 6 lks., position of middle point,
		By 1st set 41.81 chs.
		By 2nd set 41.75 chs.; the mean of which is 41.78 chs. +38.22 chs. =80.00 chs.
7900 ft.	80.00	N. 7 lks.—Correction 932 lks. S.=925 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flarges at the bottom 2 ft. in the ground for the 255th mile cor.
		A br. cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 255 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limit.
		This cor. on N. slope.
		Land, rough and broken, and rocky.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, grass; oak and locust brush with a fringe of spruce and pinon along the cliff.
		Alt. 7900 ft.
		Temp. 82°.

—256th mile—

S. 89° 58' E. on the tangent to the parallel.
Stadia measurement,
Angle 7° + Rod 12.90 double=2580 ft.×.9851 =2541.56 ft.+C.=1.14 ft.=2542.70 ft.= 38.52 chs.

7800 ft.	14.00	Bottom of dry ravine, course NW.; ascend.
	35.00	Foot of cliffs, bears NW. and SE.; ascend.
8450 ft.	38.52	Stadia point on top of mesa, bears NW. and SE.

Thence by tape measurement, across top of mesa.

54.00 East edge of mesa bears NW. and SE.
Descend along steep brushy NE. slope.

80.00 Comes in dense brush.
I. advance this cor.
Land, rough and broken.
Soil, rocky and sandy loam, 3rd rate.
Vegetation, grass on mesa; oak, aspen and locust brush; and scattering spruce and pine timber on NW. slope.

——257th mile——

S. 89° 57' E. on the tangent to the parallel.
Difference between measurements of 55.08 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 55.10 chs.
By 2nd set 55.06 chs.; the mean of which is 55.08 chs.+38.52 chs., stadia=93.60 chs.—80.00 chs.=13.60 chs. on 257th mile.

8150 ft. 13.60 N. 13 lks.—Correction 961 lks. S.=948 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 256th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 256.17 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A spruce tree 30 ins. dia. bears N. 68½° E. 59 lks. dist. marked Colo., 256.17 M., B.T.
A spruce tree 20 ins. dia. bears S. 43¼° E. 126 lks. dist. marked N.M., 256.17 M., B.T.
A spruce tree 16 ins. dia. bears S. 31¼° W. 41 lks. dist. marked N.M., 256.17 M., B.T.
A white oak tree 10 ins. dia. bears N. 56° W. 91 lks. dist. marked Colo., 256.17 M., B.T.
This cor. stands on steep NE. slope in heavy timber.

Alt. 8150 ft.
Temp. 82°.
Descend.

25.00 Bottom of ravine, stream 1 lk. wide, course SE. 50 ft. below cor.; ascend.

27.00 Wagon road bears NW. and SE.

30.00 Point of spur, slope S.

33.00 Same road bears NE. and SW.

36.00 Same gulch, course NW.; ascend.

8250 ft. 55.00 Top of spur, slope N.; descend.

7950 ft. 74.50 Bottom of deep ravine, stream 5 lks. wide, course SE., Lilly's Creek.

76.00 Same road bears NW. and SE.; ascend.

Difference between measurements of 66.50 chs. by 2 sets of chainmen is 8 lks., position of middle point,

By 1st set 66.54 chs.

By 2nd set 66.45 chs., the mean of which is 66.50 chs., from the last cor.+13.50 chs.=80.00 chs.

8000 ft. 80.00 N. 19 lks.—Correction 981 lks. S.=962 lks. S. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 257th mile cor.

A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 257 M. stamped in the center.

Raised a mound of stone 5 ft. base, 2 ft. high around the post.

Pits impracticable.

A pine tree 18 ins. dia. bears N. 31° E. 124 lks. dist. marked Colo., 257 M., B.T.

A pine tree 16 ins. dia. bears S. 82° E. 126 lks. dist. marked N.M., 257 M. B.T.

A pine tree 12 ins. dia. bears S. 5° W. 98 lks. dist. marked N.M., 257 M., B.T.

A pine tree 12 ins. dia. bears N. 48½° W. 147 lks. dist. marked Colo., 257 M., B.T.

Land, rough and broken.

Soil, sandy and rocky, 3rd rate.

Vegetation, spruce, pine and aspen timber;

oak, aspen, locust and willow brush.
Alt. 8000 ft.
Temp. 83°.

——258th mile——

S. 89° 57' E. on the tangent to the parallel.
Descend along S. slope.

7960 ft. 12.00 Bottom of ravine, stream 2 lks. wide, course SW.
Ascend.

8500 ft. 46.50 Top of righ ridge or butte, bears N. and S.; descend.
Stadia measurement.
Angle 8°— Rod 12.95 ft. double=2590 ft.× .9806=2539.75 ft.+C.=1.14 ft.=2540.89 ft.=38.49 chs.+46.50 chs.=84.99 chs.—80.00 chs. =4.99 chs. on the 259th mile.

80.00 Comes in dense brush on steep hillside.
I advance this cor.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scattering pine and spruce timber. Oak, locust and aspen brush.

——259th mile——

S. 89° 56' E. on the tangent to the parallel.

6.00 Bottom of ravine, course SE.; ascend
Difference between measurements of 53.51 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 53.54 chs.
By 2nd set 53.48 chs., the mean of which is 53.51 chs.+38.49 chs., stadia=92.00 chs.—80.00 chs.=12.00 chs. on 259th mile.

8200 ft. 12.00 N. 28 lks.—Correction 1010 lks. S.=982 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 258th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 258.15 M. stamped in the center.

Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
A pine tree 12 ins. dia. bears N. 40° E. 56 lks. dist. marked Colo., 258.15 M., B.T.
A pine tree 18 ins. dia. bears S. 48½° E. 68 lks. dist. marked N.M., 258.15 M., B.T.
A pine tree 18 ins. dia. bears S. 71½° W. 83 lks. dist. marked N.M., 258.15 M., B.T.
A pine tree 18 ins. dia. bears N. 25° W. 185 lks. dist. marked Colo., 258.15 M., B.T.
Alt. 8200 ft.
Temp. 83°.
Ascend.

8250 ft. 29.00 On spur, slope SE.; descend.

65.00 Spring branch 1 link wide course SE.; ascend.
Difference between measurements of 68.00 chs. by 2 sets of chainmen is 10 lks. position of middle point,
By 1st set 67.05 chs.
By 2nd set 67.05 chs.; the mean of which is 68.00 chs. from the last cor. +12.00 chs.= 80.00 chs.

7900 ft. 80.60 N. 37 lks.—Correction 1031 lks. S.—994 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 259th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 259 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A pine tree 16 ins. dia. bears N. 49½° E. 147 lks. dist. marked Colo., 259 M., B.T.
A pine tree 24 ins. dia. bears S. 25½° E. 117 lks. dist. marked N.M., 259 M., B.T.
A pine tree 24 ins. dia. bears S. 65° W. 121 lks. dist. marked N.M., 259 M., B.T.
A pine tree 16 ins. dia. bears N. 47° W. 198 lks. dist. marked Colo., 259 M., B.T.

This cor. stands on SW. slope, in heavy timber.
Land, rough and broken.
Soil, sandy loam, 3rd rate.
Vegetation, pine and spruce timber.
Oak, aspen and locust brush.
Alt. 7900 ft.
Temp. 83°.

——260th mile——

S. 89° 55′ E. on the tangent to the parallel.
Ascend.

7950 ft.	5.00	Top of spur, slope S.
		Thence by stadia measurement.
		Angle 4°—Rod 13.00 ft. double=26.00 ft.× .9951=2587.26 ft.+C.=1.15 ft.=2588.41 ft.=39.11 chs.+5.00 chs.=44.11 chs.
7650 ft.	35.00	Bottom of canon, stream 4 lks. wide, course SE.
		Small house about 2 chs. N.
	38.00	Wagon road bears N. and S.; ascend.
7700 ft.	44.11	Stadia point on spur, slope S.
		Descend, thence by tape measurement,
	60.00	Wagon road, bears NE. and SW.
7650 ft.	63.00	Chicorica Creek 10 lks. wide, course SW.
		Ascend in dense brush.
	80.00	Comes in dense brush.
		I advance this cor.
		Land, rough and broken.
		Soil, rocky, sandy loam, 3rd rate.
		Vegetation, grass; scattering pine and aspen timber. Oak, aspen and locust brush.

——261st mile——

S. 89° 55′ E. on the tangent to the parallel.
Ascend in dense oak brush.
Difference between measurements of 56.89 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 56.90 chs.
By 2nd set 56.88 chs.; the mean of which is 56.89 chs.+39.11 chs.=96.00 chs.—80.00 chs. =16.00 chs. on the 261st mile.

7975 ft. 16.00 N. 12 lks.—Correction 1060 lks. S.=1048 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 260th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 260.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands on steep N. slope in timber and brush.
An aspen tree 10 ins. dia. bears N. 22½° E. 70 lks. dist. marked Colo., 260.2 M., B.T.
An aspen tree 10 ins. dia. bears S. 89° E. 34 lks. dist. marked N.M., 260.2 M., B.T.
A white oak tree 8 ins. dia. bears S. 11° W. 46 lks. dist. marked N.M., 260.2 M., B.T.
An aspen tree 8 ins. dia. bears N. 32° W. 36 lks. dist. marked Colo., 260.2 M., B.T.
Alt. 7975 ft.
Temp. 84°.
Ascend in dense timber and brush.

June 30th, 1903.

I examine the transit and compare the steel tapes with the standard, find tapes of correct length and instrument in adjustment.

June 29th, 1903.

80.00 Comes on steep N. slope in dense timber and brush.
Land, rough and broken.
Soil, sandy loam, 2nd rate.
Vegetation, pine, spruce, aspen and oak timber.
Oak, aspen, wild cherry and locust brush.

——262nd mile——

S. 89° 54′ E. on the tangent to the parallel.
Ascend.

	2.00	Foot of lava cliffs bears NE. and SW.; ascend.
	4.30	Top of cliffs about 200 ft. high on edge of mesa bears NE. and SW. Thence across mesa land; leave timber and brush. Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks., position of middle point, By 1st set 80.08 chs. By 2nd set 79.92 chs.; the mean of which is 80.00 chs., from last cor.+16.00 chs.=96.00 chs.—80.00 chs.=16.00 chs. on the 262nd mile.
8700 ft.	16.00	N. 65 lks.—Correction 1085 lks. S.=1020 lks. S. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 261st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 261 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post Pits impracticable. No bearings. Thence over mesa land.
	75.80	Carpenter's house about 12 chs. N.
	78.15	Wagon road bears N. and S. Difference between measurements of 64.00 chs. by 2 sets of chainmen is nothing, the mean of which is 64.00 chs. from last cor.+16.00 chs.=80.00 chs.
8700 ft.	80.00	N. 76 lks.—Correction 1105 lks. S.=1029 lks. S. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 262nd mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 262 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post.

Pits impracticable.
S. gable of Carpenter's house bears N. 22½° W., about 13.00 chs. dist.
Chimney on square house bears S. 41½° E. about ½ mile dist.
Round hill bears S. 28½° E. about 7 miles dist.
Land, gently rolling mesa.
Soil, black loam, 2nd rate.
Vegetation, grass; some of land cultivated.
Alt. 8700 ft.
Temp. 75°.

——263rd mile——

S. 89° 53′ E. on the tangent to the parallel.
Over gently rolling mesa land.
Cultivated fields N. and S. of line.

78.67 Wagon road, bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of mid point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

8675 ft. 80.00 N. 92 lks.—Correction 1130 lks. S.—1038 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 263rd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 263 M. stamped in the center.
Raised a mound of stone 5 ft. base, 2 ft. high around the post.
Pits impracticable.
Round hill bears S. 20¾° E. about 6 miles dist.
Chimney on square house bears S. 32½° W. about ½ mile dist.
Land, gently rolling mesa.
Soil, black loam, 2nd rate.

Vegetation, grass, used for grazing; cultivated land on each side of the line.
Alt. 8675 ft.
Temp. 80°.

——264th mile——

S. 89° 53′ E. on the tangent to the parallel. Descend.

5.50 West edge of basin that becomes a pond in wet weather, bears N. and S. about 7 chs., each way.

12.00 East edge of basin, bears N. and S.; ascend.

20.00 Top of ridge bears N. and S.
Thence over rolling hills.

35.00 About 30 chs. south of this point found and destroyed Darling's 69th mile cor.
Also found the 70th mile cor. and destroyed it.
All we were able to find on this mesa.
Difference between measurements of 66.28 chs. by 2 sets of chainmen is 2 lks.; position of middle point,
By 1st set 66.29 chs.
By 2nd set 66.27 chs.; the mean of which is 66.28 chs.

8700 ft. 66.28 East edge of mesa, bears NW. and SE.
From this point made triangulation, across Bear Canon, which has precipitous sides of lava rock, and the bottom covered with dense brush.
Set flag on line across canon; ran base line S. 0° 7′ W. at right angles to the tangent 30.00 chs. from south end of base sight to north end and measure angle to flag across canon 72° 56′. Flag bears N. 73° 03′ E.
Then Log. 30.00 chs. base=1.477121×Log tangent 72° 56′=10.512857=1.989978=97.72 chs. to Flag across Canon.
97.72 chs.+66.28 chs.=164.00 chs.—160.00 chs.=4.00 chs. on 266th mile.

8400 ft. 80.00 Comes in Bear Canon, impracticable to establish.
Land, gently rolling, grass covered hills and rough rocky canon.
Soil, sandy loam, and rocky, 2nd and 3rd rate.
Vegetation, grass on hills; pine, spruce, aspen oak timber and brush in canon.

——265th mile——

S. 89° 52′ E. on the tangent to the parallel
This mile comes all in Bear Canon, is very rough and covered with dense timber and brush.

8400 ft. 80.00 Comes at foot of wall of canon, bears NW. and SE., in dense brush; ascend.
I advance this cor.
Land, rough, rocky.
Soil, rocky, 3rd rate.
Vegetation, pine, spruce, oak and aspen timber; oak, aspen, wild cherry and locust brush.

——266th mile——

S. 89° 52′ E. on the tangent to the parallel.

8700 ft. 4.00 Triangulation point on top of wall about 300 ft. high, bears NW. and SE.
N. 130 lks.—Correction 1180 lks. S.—1050 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bed rock for 265th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 265.05 M. stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post.
Pits impracticable.
This cor. stands on rocky spur, at SW. cor. of high mesa.

On the evening of May 21st, 1903, I carefully examine and adjust the transit in all its parts.

At 3h 36m A. M. l.m.t, I observe Polaris at Eastern elongation, May 22nd, 1903, and mark a point in the line so determined on a plug driven in the ground N. of my station, which is near the point for 265th mile cor. At 7h 15m A. M., May 22nd, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground, North of my station.

The magnetic bearing on the meridian is N 13° 20′ W.

This gives magnetic variation 13° 20′ E.

I now lay off an angle of 90° from the North to the East, for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

——266th mile continued——

East on the tangent to the parallel.

Ascend gradually over rolling mesa land.

8730 ft. 48.00 Top of high ridge bears NW. and SE., descend.

53.00 On wall of rimrock, bears NE. and SW.

Thence by stadia measurement; descend.

Angle 13°—Rod 9.00 ft. double=1800 ft. × .9494=1708.92 ft.+C.=1.12 ft.=1710.04 ft = 25.91 chs.+53.00 chs.=78.91 chs.

55.00 Foot of lava wall, bears NE. and SW., about 200 ft. high.

Thence descend through timber and brush.

78.91 Stadia point, thence by tape measurement.

Difference between measurements of 50.09 chs. by 2 sets of chainmen is 4 lks., position of middle point,

By 1st set 50.11 chs.

By 2nd set 50.07 chs.; the mean of which is

50.09 chs.+25.91 chs., stadia.=76.00 chs. from last cor.+4.00 chs.=80.00 chs.

8100 ft. 80.00 N. .76 of a link—Correction 1204 lks. S.—1203.24 lks.

South from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 266th mile cor:

A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 266 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

A white oak tree 10 ins. dia. bears S. 46° E. 55 lks. dist. marked N.M., 266 M., B.T.

A white oak tree 12 ins. dia. bears S. 9° W. 30 lks. dist. marked N.M., 266 M., B.T.

A white oak tree 8 ins. dia. bears N. 58° W. 15 lks. dist. marked Colo., 266 M., B.T.

No trees NE. suitable for bearing tree.

This cor. in timber and brush, on E. slope.

Land, rolling and broken.

Soil, sandy loam and rocky, 3rd rate.

Vegetation, grass on rolling mesa; and oak pine, spruce, aspen and cedar timber; oak, aspen and locust brush on slope.

Alt. 8100 ft.

Temp. 85°.

——267th mile——

S. 89° 59′ E. on the tangent to the parallel.

Descend through timber and dense brush.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point,

By 1st set 80.07 chs.

By 2nd set 79.93 chs.; the mean of which is 80.00 chs.

7400 ft. 80.00 On spur, slope SE.

N. 3 lks.—Correction 1228 lks. S.=1225 lks. S. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 267th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 267 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A cedar tree 8 ins. dia. bears N. 45¾° E. 402 lks. dist. marked Colo., 267 M., B.T.
No other trees within limit.
Land, rough and broken.
Steep SE. slope from mesa.
Soil, rocky, clay loam, 3rd rate.
Vegetation, scattering pine, cedar and aspen timber. Oak, aspen and locust brush.
Alt. 7400 ft.
Temp. 84°.

——268th mile——

S. 89° 59' E. on the tangent to the parallel.
Descend.
Stadia measurement,
Angle 7°—Rod 12.70 ft. double=2540 ft.×.9851=2502.15 ft.+C.=1.14 ft.=2503.29 ft.=37.92 chs.

22.00 Bottom of dry ravine 300 ft. deep, course SE.; ascend.

37.92 Stadia point on spur, slope SE.
Thence by tape,
Difference between measurements of 42.08 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 42.10 chs.
By 2nd set 42.06 chs.: the mean of which is 42.08 chs.+37.92 chs.; stadia=80.00 chs.

6700 ft. 80.00 N. 7 lks.—Correction 1253 lks. S.=1246 lks. S. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 268th mile cor.

A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 268 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
No trees within limits.
Land, rough and broken.
Soil, clay loam, 3rd rate.
Vegetation, scattering pine, pinon and cedar timber; oak, aspen and locust brush.
Alt. 6700 ft.
Temp. 80°.

June 29th, 1903.

——269th mile——

June 28th, 1903.

S. 89° 58' E. on the tangent to the parallel.
Descend.

9.00 Creek bottom, bears NE. and SW.
Wagon road, bears NE. and SW.

6600 ft. 10.00 San Ysidro Creek, 15 lks. wide, course NE.; ascend.

48.00 Foot of steep bluff, bears NE. and SW.; ascend.

50.00 Coal cropping bears NE. and SW.

6700 ft. 52.00 Top of ridge bears NE. and SW.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
By 1st set 80.06 chs.
By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

6600 ft. 80.00 N. 12 lks.—Correction 1278 lks. S.—1266 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 269th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 269 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post,
Pits impracticable.
A pinon tree 10 ins. dia. bears S. 27½° W. 15 lks. dist. marked N.M., 269 M., B.T.
No other trees within limit suitable for bearing trees.
Land, rolling and broken.
Soil, clay loam, and stony, 3rd rate.
Vegetation, pinon, cedar and aspen timber Oak and aspen brush.
Alt. 6600 ft.
Temp. 75°.

——270th mile——

S. 89° 57' E. on the tangent to the parallel.
Ascend.

6.00 Top of spur, slope SE.; descend.

35.00 Foot of hills bears NE. and SW.; bottom dry creek, dry water-course 8 lks. wide, course NE.

55.00 Darling's astronomical monument No. 2 bears South about 20 chs. dist. This monument is a cedar post, 12 ins. square and 8 ft. high, marked Colo. on N., 1868 on E., New Mexico on S., and 37° N.L. on W.

I destroy these marks and retrace this line to the west to foot of mesa. Failed to find any more corners.

Also retrace the Darling line from his monument No. 2, to the East,—Failed to find any corners, till I reach his 58th mile cor. at Trinchera Creek.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 80.04 chs.
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

6300 ft. 80.00 N. 19 lks.—Correction 1302 lks. S.=1283 lks. S. from the tangent,
Set temporary 270th mile cor.

See page 413.
Land, rolling.
Soil, clay loam, 3rd rate.
Vegetation, grass; scattering pinon timber; and oak and locust brush.
Alt. 6300 ft.
Temp. 78°.

——271st mile——

S. 89° 57′ E. on the tangent to the parallel.
Across little valley.

3.50 Dry gulch, course N.; house about 30 chs. SW.

20.00 Foot of hills bears NE. and SW.; ascend.

40.00 Top of ridge about 100 ft. high bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks.; position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

6350 ft. 80.00 N. 27 lks.—Correction 1327 lks. S.—1300 lks. S. from the tangent.
Set temporary 271st mile cor.
Land, rolling.
Soil, clay loam, 2nd rate.
Vegetation, grass; oak and locust brush.
Alt. 6350 ft.
Temp. 80°.

——272nd mile——

S. 89° 56′ E. on the tangent to the parallel.
Descend over rolling ground.

15.00 Dry gulch, course NE.

30.00 Top of low ridge, bears NE. and SW.

67.50 Gulch, water in holes, course NE.

77.00 Road to Trinchera, bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.

6150 ft. 80.00 N. 37 lks.—Correction 1352 lks. S.—1315 lks. S. from the tangent,
Set temporary 272nd mile cor.
Land, rolling.
Soil, clay loam, 2nd rate.
Vegetation, grass and oak brush
Alt. 6150 ft.
Temp. 82°.

—273rd mile—

S. 89° 51' E. on the tangent to the parallel.
Ascend over rolling land.
77.00 In hollow, drains N.; ascend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
6100 ft. 80.00 N. 49 lks.—Correction 1376 lks. S.—1327 lks. S. from the tangent,
Set temporary 273rd mile cor.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and oak brush.
Alt. 6100 ft.
Temp. 82°.

—274th mile—

S. 89° 55' E. on the tangent to the parallel.
Ascend, over rolling land.
3.00 Top of ridge bears NE. and SW., 50 ft. high.
30.00 Wagon road, bears NE. and SW.
40.00 Brow of ridge bears NE. and SW.; descend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
6050 ft. 80.00 N. 62 lks.—Correction 1401 lks. S.—1339 lks. S. from the tangent,

Set temporary 274th mile cor.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and oak brush
Alt. 6050 ft.
Temp. 78°

June 28th, 1903.

—275th mile—

S. 89° 54′ E. on the tangent to the parallel. The intersection with a meridian run North from Astronomical Station No. 6 at Trinchera Creek, comes at 34.00 chs. in this mile. This station, No. 6, was found to be 29.88 chs. S. of this point, on the tangent.
The off-set being 72 lks. N., makes point on parallel 30.60 chs. N. of station. This station was found by astronomical observations on the nights of Oct. 28th, 29th and 30th, 1902, to be in Lat. 36° 59′ 52.19″ N. or 11.96 chs. South of the 37th parallel. Therefore, this point on the projected line from the West is 18.64 chs. N. of the 37th parallel and 14.04 chs. outside of the limit of 3′ of arc. As it is impracticable to place astronomical monument on this meridian, as it comes in cultivated land, and near R. L. Survant's house, the monument was moved West and at

6050 ft. 12.62 N. 64 lks.—Correction 1406 lks. S. =1342 lks. S. from the tangent,
Set temporary astronomical monument at 458 lks. N. of the 37th parallel, as determined by astronomical observations, being just within the limit of 3′ arc, allowed by the Hon. Commissioner.
For description of permanent monument, see page 415.

June 28th, 1903.

At a point 5 lks. South of the point for temporary 174th mile cor. and due West of the

point for temporary astronomical monument No. 6, having previously examined the transit and found it to be in perfect adjustment, both as to the levels and the collimation, on May 25th, 1903, at 3h 21m A. M. L. M. t. I observe Polaris at Eastern elongation and mark a point in the meridian so determined on a plug driven in the ground N. of my station.

At 7h 20m A. M., May 25th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground north of my station.

The magnetic bearing of the true meridian is N. 13° 15′ W.

This gives magnetic variation, 13° 15′ E.

I now lay off 90° from the meridian from the N. to the East for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

——275th mile continued——

East on the tangent to the parallel.

Across Creek bottom.

15.40 Road to the Plaza (once known as Brazil), bears N. and SE.

16.30 Wire fence bears N. and SE., enter R. L. Survant's field.

16.30 Irrigating ditch, bears N. and SE.

33.00 Survant's house about 3 chs. South.

34.00 Darling's 58th mile cor. bears South 15.10 chs. dist.

A basalt or trap rock 20x12x10 ins. set in ground and marked C. on N., 58 M. on E., N. M. on S. and 1868 on W. faces.

I destroy this cor.

37.50 Dry bed of Trinchera Creek 25 lks. wide, course N.

45.00 Foot of lava bluff about 60 ft. high, bears NE. and SW.
Leave field and creek bottom; ascend.
47.75 Top of bluff, bears NE. and SW.
Thence over gently rolling, valley land.
75.00 Foot of hills bears NE. and SW. Leave valley; ascend.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
6150 ft. 80.00 N. .76 of a link from the tangent,
Set temporary 275th mile cor.
Land, creek bottom, and valley.
Soil, sandy loam, 2nd and 3rd rate.
Vegetation, grass, cultivated crops, alfalfa, principally. Oak, aspen and willow brush along creek.
N. B.—The subsequent adjustment of this line to the 37th parallel places Survant's house just North of the line in Colorado.
See page 416.

——276th mile——

S. 89° 59′ E. on the tangent to the parallel.
4.00 A remarkable basalt or trap dyke resembles a wall laid up by man. Extends across the country about 4 miles, bears N. 80° E. and S. 80° W.
Descend along S. slope.
60.00 Dry gulch, course NE.; ascend.
Along N. base of volcanic cone.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
6175 ft. 80.00 N. 3 lks. from the tangent,
Set temporary 276th mile cor.

Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and oak brush.
Alt. 6175 ft.
Temp. 70°.

——277th mile——

S. 89° 59′ E. on the tangent to the parallel.
Descend along N. slope of volcanic cone in oak brush.

8.00 Bottom of dry gulch, 30 ft. deep, course N.; ascend.

20.00 Top of low ridge bears NW. and SE.; descend.

35.00 Foot of hills bears NW. and SE.; enter small valley.

36.00 Wagon road, bears NW. and SE.

57.60 Road, bears NE. and SW.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing: the mean is 80.00 chs.

6100 ft. 80.00 N. 7 lks. from the tangent,
Set temporary 277th mile cor.
Land, rolling and valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and oak brush.
Alt. 6100 ft.
Temp. 75°.

——278th mile——

S. 89° 58′ E. on the tangent to the parallel.

.50 Dry bed of stream 15 lks. wide, course NW. about 3.00 chs. then NE.

3.00 Foot of hill bears N. and S.; ascend.

8.00 Top of bluff about 50 ft. above valley, bears NE. and SW.
Thence over rolling ground.

36.00 Road bears N. and S.

42.00 Gulch, water in holes, banks 15 ft. high, course N.
Ascend.

80.00 Enter brush and scattering timber, bears NE. and SW.
80.00 Comes on steep hillside in dense brush.
I advance this cor.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass; oak brush, and scattering pinon timber.

——279th mile——

S. 89° 57′ E. on the tangent to the parallel
6.00 Top of hill bears NW. and SE. about 100 ft. above bottom of gulch.
Difference between measurement of 88.00 chs. by 2 sets of chainmen is 6 lks. position of middle point,
By 1st set 88.03 chs.,
By 2nd set 87.97 chs.; the mean of which is 88.00 chs.—80.00 chs.=8.00 chs. on the 279th mile.
6200 ft. 8.00 N. 13 lks. from the tangent,
Set temporary 278th mile cor., marked 278.1 M.
Land, rolling.
Soil, sandy and stony, 3rd rate.
Vegetation, grass; oak brush and scattering pinon timber.
Alt. 6200 ft.
Temp. 78°.
14.00 Dry ravine about 30 ft. deep, course NW.; ascend over low brush covered hills.
80.00 Comes in dry gulch, course NW.
I advance this cor.
Land, rolling.
Soil, sandy loam, and stony, 3rd rate.
Vegetation, grass; oak brush and scattering pinon timber.

——280th mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascend.
5.80 Top of ridge bears NE. and SW.

Difference between measurements of 78.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 78.02 chs.
By 2nd set 77.98 chs.; the mean of which is 78.00 chs., from the last cor.+8.00 chs.—86.00 chs.—80.00 chs.=6.00 chs. on 280th mile.

6250 ft. 6.00 N. 19 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 279th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 279.075 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
No trees suitable for bearing trees.
Alt. 6250 ft.
Temp. 75°.

May 25th, 1903.

May 26th, 1903, rain. No line run.
I examine and adjust the transit and compare the steel tapes with the standard. Find them all correct.
Descend.

19.25 Dry gulch, course N.; leave brush, bears NW. and SE.

56.00 Dry gulch, course NW.

60.90 Wagon road, bears NW. and SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

5950 ft. 80.00 N. 27 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 280th mile cor.

A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 280 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A box elder tree 10 ins. dia. bears N. 49° 20' E. 141 lks. dist., marked Colo., 280M., B.T.
No other trees within limit.
A Mexican cabin about ½ mile N.
Land, rolling.
Soil, sandy loam.
Vegetation, grass and oak brush.
Alt. 5950 ft.
Temp. 60°.

281st mile

S. 89° 56' E. on the tangent to the parallel
1.50 Dry bed of stream 20 lks. wide, course N.
Ascend.
10.00 Enter timber and brush, bears NE. and SW.
35.00 Darling's 52nd mile cor. bears S. 11.80 chs. dist.
I destroyed this cor. The first we have found East of his 58th mile cor.
36.60 Top of ridge bears N. and S., 300 ft. above gulch.
Thence over pinon hills.
43.00 Dry ravine, course N.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
6120 ft. 80.00 N. 37 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 281st mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 281 M. stamped i nthe center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pinon tree 8 ins. dia. bears N. 54° W. 180 lks. dist. marked Colo., 281 M., B.T.
No other trees suitable for bearing trees within limit.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, pinon timber; oak and aspen brush.
Alt. 6120 ft.
Temp. 68°.

——282nd mile——

S. 89° 55′ E. on the tangent to the parallel.
Descend.

	2.00	Dry gulch; course NE.
	3.00	Dry ravine, course N., 50 ft. deep; ascend
	48.00	Thence by stadia measuremen t,
		Angle 8°+Rod 9.75 ft. double=1950 ft. × .9806=1912.17 ft.+C.=1.14 ft.=1913.31 ft.= 28.99 chs.+48.90 chs.=77.89 chs.
	54.00	Bottom of dry ravine, course N.
	77.89	Stadia point, thence by tape.
		Difference between measurements of 51.01 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 51.02 chs.,
		By 2nd set 51.00 chs.; the mean of which is 51.01 chs.+28.99 chs., stadia=80.00 chs.
6450 ft.	80.00	N. 49 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 282nd mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 282 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		Volcanic cone at Watervale station on the

Colorado & Southern R.R. bears N. 7° 05′ W. about 1 mile dist.
A volcanic cone bears N. 55° 40′ W.
A volcanic cone bears S. 84° 21′ W. about 7 mile dist.
This cor. stands on N. slope in dense oak brush.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, oak brush and scattering pinon timber.
Alt. 6450 ft.
Temp. 72°.

——283rd mile——

S. 89° 55′ E. on the tangent to the parallel.
Ascend.

29.70 Top of spur, slope NE.
Thence by stadia measurements,
Angle 4°—Rod 13.00 ft. double=2600 ft. × .9951=2587.26 ft.+C.=1.15 ft.=2588.41 ft.=39.21 chs.+29.70 chs.=68.91 chs.

6850 ft. 68.91 Stadia point on sharp brushy spur, slope N.
Angle 8°+Rod. 8.35 ft. double=1670 ft. × .9806=1637.60 ft.+C.=1.14 ft.=1638.74 ft.=24.82 chs.+68.91 chs.=93.73 chs.—80.00 chs. =13.73 chs. on 284th mile.

6550 ft. 80.00 Comes in dry canon about 300 ft. below top of spur, course N.
I advance this cor.
Land, rough and broken.
Soil, rocky, clay loam, 3rd rate.
Vegetation, dense oak and aspen brush.

——284th mile——

S. 89° 54′ E. on the tangent to the parallel.

13.73 On top of wall of rim rock, about 200 ft. high, bears NE. and SW.
Thence by tape.

7075 ft. 14.00 N. 64 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 283rd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 283.175 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high around the post.
Pits impracticable.
A pinon tree 8 ins. dia. bears S. 80° 26' E. 177 lks. dist. marked N.M., 283.175 M., B.T.
No other trees within limit, suitable for bearing trees.
Volcanic cone at Watervale bears N. 42° 30' W.
This cor. stands on high, rocky spur.
Alt. 7075 ft.
Temp. 70°.
Thence by stadia.
Angle 11° — Rod 12.60 ft. double=2520 ft. × .9636=2428.27 ft.+C.=1.13 ft.=2429.40 ft.=36.81 chs.+14.00 chs.=50.81 chs.

18.00 Foot of wall about 75 ft. high bears NW. and SE.
Thence along N. slope in dense brush.

25.00 Springs just North of line.

50.81 Stadia point, thence by tape.

6350 ft. 70.00 Bottom of ravine course N.; ascend.
Difference between measurements of 29.19 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 29.20 chs.
By 2nd set 29.18 chs., the mean of which is 29.19 chs.+36.81 chs., stadia=66.00 chs. from last cor.+14.00 chs.=80.00 chs.

6500 ft. 80.00 N. 76 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 284th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 284th M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.
A pinon tree 10 ins. dia. bears N. 60° E. 57 lks. dist. marked Colo., 284 M., B.T.
A pine tree 12 ins. dia. bears S. 44° W. 283 lks. dist. marked N.M., 284 M., B.T.
No other trees within limit suitable for bearing trees.
Extreme N. end of rocky point of mesa, bears N. 69° 26′ W. about 1 mile dist.
Land, rough, mountainous.
Soil, rocky, clay loam, 3rd rate.
Vegetation, oak, aspen and wild cherry brush; scattering pine and aspen timber.
Alt. 6500 ft.
Temp. 54°.

May 27th, 1903.

I examine the transit and find it in adjustment, compare the steel tapes with the standard and find them all of correct length.

285th mile

S. 89° 53′E. on the tangent to the parallel.
Ascend along brushy N. slope.
By stadia measurement,
Angle 3°+4.00 ft. double=800 ft.×.9973=797.84 ft.+C.=1.15 ft.=798.99 ft.=12.10 chs.

12.10 Stadia point,
Angle 4°+Rod7.95 ft. double=1590 ft.×.9951=1582.21 ft.+C.=1.15 ft.=1583.36 ft.=23.99 chs.+12.10 chs.=36.09 chs.

36.09 Stadia point,
Angle 0° Rod 5.00 ft. double=1000 ft.+C.=1.15 ft.=1001.15 ft.=15.17 chs.+36.09 chs.=51.26 chs.

51.26 Stadia point,
Angle 16°+Rod 7.30 ft. double=1460 ft.×.9240=1349.04 ft.+C.=1.10 ft.=1350.14 ft.=20.45 chs.+51.26 chs.=71.71 chs.

70.00 Foot of rim rock wall about 200 ft. high, bears NE. and SW.; ascend.

71.30 Top of wall of westerly edge of high mesa; the north end of the Raton plateau, bears NE. and SW.

Leave brush, bears NE. and SW.

6950 ft. 71.71 Stadia point, thence by tape measurement. Across mesa.

6950 ft. 80.00N. 92 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 285th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 285 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post.

Pits impracticable.

Volcanic cone at Watervale bears N. 59° 20′ W.

North face of NE. salient of Raton plateau bears N. 76° 38′ W.

This cor. stands on the mesa.

Land, mountainous.

Soil, rocky, sand and clay, 3rd rate.

Vegetation, grass on mesa; dense oak and aspen brush on slope.

Alt. 6950 ft.

Temp. 60°.

——286th mile——

S. 89° 53′ E. on the tangent to the parallel. Across high mesa.

56.00 Dry ravine about 100 ft. deep, course N. Drops over wall about 15.00 chs. N.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,

By 1st set 80.02 chs.,

By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

6900 ft. 80.00 N. 110 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 286th mile cor. A brass cap on the top

of the pipe has raised letters Colo. on N., N.M. on S. and 286 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist.
Raised a mound of earth, 5 ft. base 2 ft. high around the post.
Land, high plateau.
Soil, sandy, 3rd rate.
Vegetation, grass.
Alt. 6900 ft.
Temp. 62°.

287th mile

S. 89° 52′ E. on the tangent to the parallel.

6900 ft. 15.30 East edge of mesa, bears NE. and SW.
Descend, thence by stadia measurement,
Angle 9°— Rod 6.36 ft. double=1272 ft.× .9755=1240.84 ft.+C.=1.13 ft.=1241.97 ft.=18.82 chs.+15.30=34.12 chs.

34.12 Stadia point,
Angle 11°—Rod 6.80 single=680 ft.×.9656 =655.25 ft.+C.=1.13 ft.=656.38 ft.=9.94 chs.+34.12 chs.=44.06 chs.

44.06 Stadia point,
Angle 5°—Rod 10.10 ft. double=2020 ft.× .9924=2004.65 ft.+C.=1.14 ft.=2005.79 ft.=30.39 chs.+44.06 chs.=74.45 chs.

74.45 Stadia point, thence by tape measurement,

6700 ft. 80.00 N. 129 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 287th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 287 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
A point of rocks on N. side of rocky butte bears S. 65° 25′ E. about ¾ of a mile dist.
N. face wall of mesa, bears N. 83° 45′ W. about ¾ of a mile dist.
Cone-shaped peak bears S. 10° 56′ about 7 miles dist.

This cor. stands on SE. slope W. st of R.R track at the foot of Raton mountains.
Land, mountainous.
Soil, sandy loam, 3rd rate.
Vegetation, grass, scattering pinon timber and oak brush.
Alt. 6700 ft.
Temp. 72°.

——288th mile——

S. 89° 52′ E. on the tangent to the parallel. Descending; leave the Raton Mountains, bears NW. and SE.

4.75 Colorado & Southern R.R. track bears NE. and SW.
Emery Gap station about 2 miles SW.

6600 ft. 24.00 Dry arroyo, course NE., ascend.

50.80 Top of spur, slope N.; descend gradually.
Difference between measurements of 80.00 chs. by 2 setsof chainmen is 8 lks. position of middle point,
By 1st set 80.04 chs.,
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

6750 ft. 80.00 N. 150 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 3 ft. in the ground for 288th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S., and 288 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
No bearings.
Land, rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass; sage and scattering oak brush.
Alt. 6750 ft.
Temp. 72°.

——289th mile——

S. 89° 51′ E. on the tangent to the parallel.
Descend.

6668 ft. 41.00 Bottom of dry ravine, about 100 ft. deep, course N.
Ascend.

6675 ft. 51.00 Top of spur, slope S. N. side of round hill; descend.

6650 ft. 60.00 Foot of hills, bears NW. and SE.
Thence over nearly level plain.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 80.05 chs.;
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

6650 ft. 80.00 N. 172 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 289th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 289 M. stamped in the center.
Dug pits 36x36x18 ins. N., S., E. and W. of cor. 6 ft. dist.
Raised a mound of earth, 5 ft. base 2 ft. high, around the post.
No bearings.
Land, rolling and plain.
Soil, sandy loam, 3rd rate.
Vegetation, grass, sage and scattering oak brush on rolling land; and grass and soap weed on plain.
Alt. 6650 ft.
Temp, 65°.

——290th mile——

S. 89° 50′ E. on the tangent to the parallel.
Over nearly level land.

25.25 Darling's 43rd mile cor. bears South 5.18 chs. dist.
A sandstone 22x8x4 ins. marked C. on N., 43 M. on E., N.M. on S. and 1868 on W. faces

I destroyed this cor. The first one I have been able to find East of his 52 nd mile cor.

30.00 Enter oak brush, bears N. and S.

54.00 Bottom of Long Canon, about 75 ft. deep. Dry bed 20 lks. wide, course SE.; ascend.

65.00 On N. wall of canon bears NW. and SE.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,

By 1st set 80.06 chs.

By 2nd set 79.94 chs.; the mean of which is 80.00 chs.

6600 ft. 80.00 N. 196 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 290th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 290 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft high, around the post. Pits impracticable.

A round peak on mesa bears S. 16° W.

South side of butte E. of R.R. track bears S. 82° W.

N. salient of Raton plateau bears N. 85¾ W.

Land, gently rolling, except where broken by canon.

Soil, sandy loam, and rocky, 3rd rate.

Vegetation, grass and oak brush.

Alt. 6600 ft.

Temp. 60°.

May 28th 1903.

Having previously made a careful examination of the transit and found it in perfect adjustment,

At the point for the 290th mile cor.

At 3h 05m A. M., l.m.t., May 29th, 1903, I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground North of my station.

At. 7h 15m A. M., May 29th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined, on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 12° 45′ W.

This gives the magnetic variation 12° 45′ E.

I now lay off an angle of 90° from this meridian from the North to the East for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.

This line was run through to the 7th astronomical station, at the 325th mile cor., where the falling was found to be 10.52 chs., south of the 37th parallel, as determined by astronomical observations on the nights of Nov. 3rd, 4th and 7th, 1902. This being 5.92 chs. outside the limit of 3″ arc allowed by the Hon. Commissioner, the line was corrected from this point, at the rate of 18 lks. N. per mile to bring it inside of said limit,—hence the difference in date between the projection of the tangents and the establishment of permanent corners.

——291st mile——

East on the tangent to the parallel.

Along North wall of Long Canon.

24.44 On wall of canon, bears NE. and SW.

Thence by stadia measurement,

Angle 0° Rod 9.20 double=1840 ft.+C.=1.15 ft.=1841.15 ft.=27.90 chs.+24.44 chs.=52.34 chs.

38.50 Bottom of Long Canon about 150 ft. deep, course NE.

52.34 Stadia point on south wall, bears NE. and SW.

Thence by tape measurement,

61.00 Enter timber and brush, bears N. and S.

Difference between measurements of 52.10 chs. by 2 sets of chainmen is 6 lks., position of middle point,

By 1st set 52.13 chs.,

By 2nd set 52.07 chs.; the mean of which is 52.10 chs.+27.90 chs., stadia=80.00 chs.

6700 ft. 80.00 N. .76 of a link+Correction 18 lks. N.=18.76 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 291st mile cor.

A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 291 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A pinon tree 6 ins. dia. bears N. 8½° E. 100 lks. dist. marked Colo., 291 M., B.T.

A pine tree 18 ins. dia. bears S. 29° E. 150 lks. dist. marked N.M., 291 M., B.T.

A cedar tree 10 ins. dia. bears S. 43° 30′ W. 124 lks. dist. marked N.M., 291 M., B.T.

A pinon tree 7 ins. dia. bears N. 48½° W. 54 lks. dist. marked Colo., 291 M., B.T.

This cor. stands on NW. side of rocky ravine, about 30 ft. deep, course NE.

Alt. 6700 ft.

Temp. 62°.

——292nd mile——

S. 89° 59′ E. on the tangent to the parallel. Descend.

3.30 Bottom of dry, rocky ravine, course NE.

10.00 Leave timber, bears N. and S.

27.20 On south wall of canon, bears NW. and SE.

Thence by stadia measurement,

Angle 2°—Rod 11.50 ft. double=23.00 ft.×.9988=2297.24 ft.+C.=1.15 ft.=2298.39 ft.=34.82 chs.+27.20 chs.=62.02 chs.

6000 ft. 45.00 Bottom of Long Canon, course SE.

62.02 Stadia point on N. wall on canon, bears NW. and NE.
Angle 5°—Rod 11.00 double=2200 ft.×.9924 =2183.28 ft.+C.=1.14 ft.=2184.42 ft.=33.20 chs.+62.02 chs.=95.22 chs.—80.00 chs.= 15.22 chs. on 293rd mile.

80.00 Comes on rocky slope of canon wall.
I advance this cor.
Land, rough and broken, by deep canon.
Soil, sandy and rocky, 3rd rate.
Vegetation, pine and pinon timber.
Oak, aspen and pinon brush.

——293rd mile——

S. 89° 59' E. on the tangent to the parallel.

15.22 Stadia point, thence by tape measurement,
6300 ft. 16.00 N. 4 lks.+Correction 36 lks. N.=40 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 292nd mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 292.2 M., stamped in the center.
Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
This cor. on rocky SE. slope in canon, about 100 ft. above bottom.
No bearing trees.
Alt. 6300 ft.
Temp. 70°.

26.00 Darling's 40th mile cor. bears S. about 5 chs. dist.
A sandstone 18x10x7 ins. in stone mound, marked C. on N., 40 M. on E., N. M. on S. 1868 on W.
I destroyed this cor.

26.10 Stadia measurement from this point,
Angle 7°+Rod 9.40 ft. double=1880 ft.× .9851=1851.99 ft.+C.=1.14 ft.=1853.13 ft.= 28.07 chs.+26.10 chs.=54.17 chs.

47.00 Bottom Long Canon, where it is joined by canon from SW.; course NE.

54.00 On wall of canon about 300 ft. above bottom, bears N. and S. Enter pinon timber, bears N. and S.

64.17 Stadia point, thence by tape measurement,

61.10 Leave timber, bears N. and S.

Difference between measurements of 35.93 chs. by 2 sets of chainmen is 2 lks., position of middle point,

By 1st set 35.94 chs.,

By 2nd set 35.92 chs.; the mean of which is 35.93 chs. + 28.07 chs., stadia = 64.00 chs. from last cor. + 16.00 chs. = 80.00 chs.

6300 ft. 80.00 N. 7 lks. + Correction 54 lks. N. = 61 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 293rd mile cor.

Abrass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 293 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post

Pits impracticable.

No trees within limit.

Land, rough and broken.

Soil, rocky and sandy, 3rd rate.

Vegetation, pinon timber; oak and piror brush.

——294th mile——

S. 89° 58′ E. on the tangent to the parallel.

15.00 Bottom dry ravine about 100 ft. deep, course N.

6300 ft. 38.50 On south wall of Long Canon, bears NW. and SE.

Thence by stadia,

Angle 10°—Rod 7.40 double = 1480 ft. × .9698 = 1433.35 ft. + C. = 1.13 ft. = 1436.43 ft. = 21.76 chs. + 38.50 chs. = 60.26 chs.

60.26 Stadia point, thence by tape measurement,

75.00 Bottom of Long Canon, in creek bed, water in holes in bend, from NW. to NE.
Difference between measurements of 58.24 chs. by 2 sets of chainmen is 6 lks., positi n of middle point,
By 1st set 58.27 chs.,
By 2nd set 58.21 chs.; the mean of which is 58.24 chs.+21.76 chs., stadia = 80.00 chs
6000 ft. 80.00 N. 12 lks. +Correction 72 lks N.=84 lks N. from the tangent,
This point for cor, comes in bed of creek, im practicable to establish at that point. I therefore, set it South 115 lks. from its true place.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for witness cor. for 294th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and WC. 294 M. stamped in the enter.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A cottonwood tree 10 ins. dia. bears S. 83½ E. 382 lks. dist., marked N.M., W.C. 294 M., B.T.
A cottonwood tree 6 ins. dia. bears N. 64° W. 225 lks. dist. marked Colo., W.C. 294 M., B.T.
No other trees suitable for bearing trees.
This witness cor. stands in canon on S. bank of the creek.
Land, rough and broken.
Soil, rocky, sandy loam, 3rd rate.
Vegetation, scrub cedar and pinon and cottonwood timber; oak, willow and soft maple brush.
Alt. 6000 ft.
Temp. 75°.

——295th mile——

S. 89° 57' E. on the tangent to the parallel.

	3.90	Creek in Long Canon, water in holes, course SE.
	18.00	Same creek, dry bed 20 lks. wide, course NE.
	38.00	Cabin about 2 chs. S.
5900 ft.	40.90	Same creek, water in holes, course SE.
6050 ft.	65.00	On rocky spur, slope S. about 150 ft. above creek bottom.
		Descend.
	75.00	Foot of hill bears NE. and SW.; leave timber and brush.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
5900 ft.	80.00	N. 19 lks.+Correction 90 lks. N.=109 lks. N. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 295th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 295 M. stamped in the center. Dug pits 36x36x18 ins. N., E., S. and W. of the cor. 6 ft. dist.
		Raised a mound of earth 5 ft. base, 2 ft. high around the post.
		This cor. on flat north of creek.
		No bearing trees.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, pinon and aspen timber. Aspen, oak and willow brush.
		Alt. 5900 ft.
		Temp. 75°.

——296th mile——

S. 89° 57′ E. on the tangent to the parallel.

	21.15	On low spur, slope S.
		Stadia measurement from this point,
		Angle 15°+Rod 6.50 double=1300 ft.×.9330

=1212.90 ft. + C. -1.11 ft. =1214.01 ft. =18.39 chs. +21.15 chs. =39.54 chs.

24.80 Darling's 37th mile cor., bears S. 1.94 chs. dist.
A sandstone 18x10x8 ins. in stone mound. I destroyed this cor. The first one I have been able to find since passing his 40th mile.

5800 ft. 26.00 Bottom of rocky canon, comes from NE.
Ascend steep over rocks and brush.

38.50 Foot of wall about 75 ft. high, bears NE. and SW.

39.54 Top of wall, bears NE. and SW.
Stadia point, thence by tape measurement; ascend.

6250 ft. 49.00 Top of mesa bears N. and S.; enter scattering timber and brush, bears N. and S.
Difference between measurements of 64.61 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 61.63 chs.
By 2nd set 61.59 chs.; the mean of which is 61.61 chs. +18.39 chs., stadia =80.00 chs.

6200 ft. 80.00 N. 27 lks. +Correction 108 lks. N. =135 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 296th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 296 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Lone tree on N. end of long butte bears N. 80° 28′ E.
E. face of wall across canon bears S. 2° 25′ E.
This cor. stands on high mesa at head of little gulch, course S.
Land, rolling and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass; scattering pinon and cedar timber; oak and pinon brush.

Alt. 6200 ft.
Temp. 76 .

——297th mile——

S. 89° 56' E. on the tangent to the parallel.
Over gently rolling table or mesa land.

24.00 Darling's 36th mile cor., bears S. 1 ch. dist.
A sandstone 16x8x6 ins. marked C. on N. 36 M. on E., N.M. on S., and 1868 on W. faces.
I destroyed this cor.

26.00 Leave oak brush, bears N. and S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

6150 ft. 80.00 N. 37 lks. + Correction 126 lks. N. = 163 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 297th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 297 M. stamped in the center. Dug pits 36x36x18 ins. N., E., S. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A round peak on mesa bears S. 48° W. about 10 chs. dist.
A timbered cone on high ridge bears N. 52° E. about 6 miles dist.
Land, gently rolling mesa.
Soil, sandy loam 3rd rate.
Vegetation, grass and soapweed.
Patches of oak brush on W. end of mile.
Alt. 6150 ft.
Temp. 75°.

——298th mile——

S. 89° 55' E. on the tangent to the parallel.
Over nearly level mesa.

24.30 Darling's 35th mile cor., 70 lks. S.

I destroyed this cor.

59.85 Wagon road bears NW. and SE.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.

6150 ft. 80.00 N. 49 lks.+Correction 144 lks N.=193 lks. N. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 298th mile cor.

A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 298 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post. Pits impracticable.

Top of round peak on mesa bears S. 51° W. about 30 miles dist.

North salient of Raton plateau bears N. 88° W.

Land, mesa.

Soil, sandy loam, 3rd rate.

Vegetation, grass.

Alt. 6150 ft.

Temp. 70°.

——299th mile——

S. 89° 55′ E. on the tangent to the parallel.

9.10 On low spur, slope S., thence by stadia measurement.

Angle 7°+Rod 7.20 ft. double=1440 ft.× .9851=1418.54 ft.+C.=1.14 ft.=1419.68 ft.= 21.51 chs.+9.10 chs.=30.61 chs.

24.30 Darling's 34th mile cor. on this line. I destroyed this cor.

26.50 Foot of lava wall bears N. and S.

6350 ft. 30.61 Stadia point on top of wall 100 ft. high, bears N. and S.

Top of high butte that extends N. about ½ mile and S. about 15 chs. (Hardesty Butte.)

6350 f.. 38.08 On top of wall bears N. and S.; east side top of long butte.

Thence by stadia measurement; descend.

Angle 11°—Rod 6.65 ft. double=1330×.9636 =1281.59 ft.+C.=1.13 ft.=1282.72 ft.=19.43 chs.+38.08 chs.=57.51 chs.

57.51 Stadia point,
Angle 9°—Rod 7.00 ft. single=700 ft.×.9755 =682.85 ft.+C.=1.13 ft.=683.98 ft.=10.36 chs.+57.51 chs.=67.87 chs.

64.00 Dry gulch, course NE.

64.50 Graded wagon road, bears NE. and SW.

67.87 Stadia point, on spur, slope NE.
Angle 9°—Rod 10.70 ft. double=2140 ft.×.9755=2087.57 ft.+C.=1.13 ft.=2088.70 ft.=31.64 chs.+67.87 chs.=99.51 chs.—80.00 chs. =19.51 chs. on 300th mile.

80.00 Comes on rocky and brushy E. slope.
I advance this cor.
Land, rough and mountainous, broken by lava cliffs.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering cedar and pinon timber.
Pinon and oak brush.

——300th mile——

S. 89° 54′ E. on the tangent to the parallel.

19.51 Stadia point, thence by tape.

5500 ft. 20.00 N. 65 lks.+Correction 166 lks. N.=231 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 299th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 299.25 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post.
Pits impracticable.
A pinon tree 10 ins. dia. bears S. 4° 20′ E. 432 lks. dist. marked N.M., 299.25 M., B.T.
A pinon tree 12 ins. dia. bears S. 70½° E. 395 lks. dist. marked N.M., 299.25 M., B.T.
George Hardesty's windmill in front of his house bears N. 35° E. about 20 chs. dist.

This cor. stands on N. slope near foot of hill.
April 22nd, 1903.

I examine the transit and compare the steel tapes with the standard, find the instrument in adjustment and tapes of correct length.

24.00 Darling's 33rd mile cor. 1 ch. N. of tangent, a X mark on a rock and a stone monument beside it.
I destroyed this cor.

5450 ft. 27.00 Foot of hills; leave timber, bears S. and N. about 3 chs. then NW.; thence across little valley.

28.50 Deserted cabin about 3 chs. S.

31.30 Dry bed of water course, 30 lks. wide, course S.

33.25 Wagon road bears N. and S.

5450 ft. 60.00 Foot of hills bears NE. and SW.; leave valley, enter brush; ascend.
Difference between measurements of 60.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 60.01 chs.
By 2nd set 59.99 chs.; the mean of which is 60.00 chs., from last cor.+20.00 chs.=80.00 chs.

5800 ft. 80.00 N. 76 lks.+Correction 180 lks. N.=256 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 300th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 300 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post.
No bearings.
This cor. stands on steep rocky NW. slope.
Land, valley and rough hills.
Soil, sandy loam, 2nd and 3rd rate.
Vegetation, grass and oak and pinon timber and brush.

Alt. 5800 ft.
Temp. 72°.

—301st mile—

S. 89° 53′ E. on the tangent to the parallel.

19.00 Bottom of rocky gulch, course NE.

6100 ft. 23.00 On mesa bears NE. and SW.; enter timber and brush, bears NE. and SW.

24.50 Darling's 32nd mile cor. about 2 chs. N. I destroy this cor.

36.90 Darling's astronomical monument No. 1. 2.10 chs. north of the tangent. Sandstone shaft firmly set 11x14 ins. 4 ft. above ground marked COLORADO on N. 1868 on E. NEW MEXICO on S. and 37° N.L. on W. faces.
I destroy this monument.

43.30 Wire fence bears N. and S. about 1 ch. N. to fence cor., thence fence runs east.

78.00 Bottom of box canon about 150 ft. deep, course S.

80.00 Comes on slope of canon wall.
I advance this cor.
Land, rolling mesa, and broken by canons.
Soil, sandy and rocky, 3rd rate.
Vegetation, pine and pinon timber, oak and pinon brush.

—302nd mile—

S. 89° 53′ E. on the tangent to the parallel; ascend.
Difference between measurements of 88.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 88.05 chs.,
By 2nd set 87.95 chs.; the mean of which is 88.00 chs.—80.00 chs.=8.00 chs. on 302nd mile.

6000 ft. 8.00 N. 94 lks.+Correction 200 lks. N.=294 lks. N from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 301st mile cor.
Abrass cap on the top of the pipe has raised letters Colo. on N., N.M. on S., and 301.1 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A pinon tree 6 ins. dia. bears S. 41° W. 293 lks. dist. marked N.M., 301.1 M., B.T.
A pinon tree 12 ins. dia. bears N. 54° 40' W. 364 lks. dist., marked Colo., 301.1 M., B.T.
No other trees within limit.
Leave timber and brush, bears N. and S.
Alt. 6000 ft.
Temp. 80°.

24.50 Darling's 31st mile cor. about 2 chs. N.
I destroy this cor.

27.00 Top of ridge bears NE. and SW.
Difference between measurements of 72.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 72.02 chs.,
By 2nd set 71.98 chs.; the mean of which is 72.00 chs., from last cor. +8.00 chs. =80.00 chs.

6050 ft. 80.00 N. 110 lks. +Correction 216 lks. N. =326 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 302nd mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 302 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of cor. 6 ft. dist.
Raised a mound of earth 5 ft. base, 2 ft. high around the post.
A conical butte on high mesa bears N. 60° 11' W.
N. end of Hardesty butte bears N. 83° 58' W.
Land, rolling.

Soil, sandy loam, 3rd rate.
Vegetation, grass; scattering pinon timber; oak and pinon brush.
Alt. 6000 ft.
Temp. 80°.

——303rd mile——

S. 89° 52' E. on the tangent to the parallel

24.50 Darling's 30th mile cor. about 2 chs. N.
I destroyed this cor.

6100 ft. 34.00 Top of ridge, bears NE. and SW.

64.00 Thence by stadia measurement; enter brush and scattering timber, bears N. and S.
Angle 8'—Rod 9.20 ft double=1840 ft.× .9806=1804.30 ft.+C.=1.14 ft.=1805.44 ft.=27.35 chs.+64.00 chs.=91.35 chs.—80.00 chs.=11.35 chs. on 304th mile.

71.00 Bottom of dry canon, 300 ft. deep, course NE.

80.00 Comes in rocky and brushy hillside.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass; cedar and pinon timber. Oak brush.

——304th mile——

S. 89° 52' E. on the tangent to the parallel.

11.35 Stadia point, thence by tape measurement. Difference between measurements of 64.65 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 64.69 chs.,
By 2nd set 64.61 chs.; the mean of which is 64.65 chs.+stadia 27.35 chs.=92.00 chs.—80.00 chs.=12.00 chs. on 304th mile.

5800 ft. 12.00 N.132 lks.+Correction 237 lks. N.=369 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 303rd mile cor.
A brass cap on the top of the pipe has raised

letters Colo. on N., N.M. on S. and 303.15 M. stamped in the center.
Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
Alt. 5800 ft.
Temp. 80°.

13.00 Bottom of dry canon, course NE.
Ascend.

17.60 Top of rocky spur, slope S.; descend.

22.00 Bottom of main canon, course N.; ascend.

6000 ft. 48.00 On E. wall of canon, bears NW. and SE.

64.40 Top of ridge, bears N. and S.
Thence by stadia.
Angle 2°—Rod 12.55 ft. double=2510 ft.× .9988=2506.99 ft.+C.=1.15 ft.=2508.14 ft.=38.00 chs.+64.40 chs.=102.40 chs.—80.00 chs. =22.40 chs. on 305th mile.

80.00 Comes in rocky canon 250 ft. deep, course NW.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pinon timber; oak and pinon brush.

——305th mile——

S. 89° 51′ E. on the tangent to the parallel.

22.40 On N. wall of canon, bears NW. and SE.
Stadia point, thence by tape measurement,
Difference between measurements of 54.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 54.02 chs.,
By 2nd set 53.98 chs.; the mean of which is 54.00 chs.+38.00 chs., stadia=92.00 chs. from last cor.+12.00 chs.=104.00 chs.—80.00 chs.=24.00 chs. on 305th mile cor.

5000 ft. 24.00 N. 157 lks.+Correction 257 lks. N.=414 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for 304th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 304.3 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 10 ins. dia. bears N. 42½° W. 120 lks. dist., marked Colo., 304.3 M., B.T.
No other trees within limit.

24.50 Darling's 28th mile cor. about 3 chs. N. from the tangent.
Difference between measurement of 56.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 56.03 chs.,
By 2nd set 55.97 chs.; the mean of which is 56.00 chs., from the last cor.+24.00 chs.—80.00 chs.

6000 ft. 80.00 N. 172 lks.+Correction 270 lks. N.—442 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 305th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 305 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
North end of Hardesty butte bears N. 87¼° W.
Black Peak bears S. 76½° W.
Land, rolling and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass; oak brush; and scattering pinon timber.
Alt. 6000 ft.
Temp. 79°.

——306th mile——

S. 89° 50′ E. on the tangent to the parallel.

6050 ft. 12.00 Top of high ridge bears NE. and SW.; descend.

27.09 Top of rocky bluff, bears NE. and SE., overlooking Cimarron Valley.
Thence by stadia measurement,
Descend.
Angle 6°—Rod 12.65 double=2530 ft.×.9891 =2502.42 ft.+C.=1.14 ft.=2503.56 ft.=37.93 chs.+27.09 chs.=65.02 chs.

65.02 Stadia point,
Angle 2°—Rod 11.20 ft. double=2240 ft.× .9988=2237.31 ft.+C.=1.15 ft.=2238.46 ft.= 33.91 chs.×65.02 chs.=98.93 chs.—80.00 chs. =18.93 chs. on 307th mile.

80.00 Comes on rough, rocky and brushy SE. slope.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pinon timber; oak and pinon brush.

——307th mile——

S. 89 50' E. on the tangent to the parallel. Descending.

18.93 Stadia point, thence by tape measurement,

5600 ft. 20.00 N. 202 lks.+Correction 292 lks. N.=494 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 306th mile cor. A brass cap on the top of the pipe has raised letters, Colo on N. N.M. on S. and 306.25 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.

42.35 Foot of bluff, enter Cimarron valley, bears NE. and SW.
Leave brush, bears NE. and SW.
Difference between measurements of 60.00

chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 60.01 chs.,
By 2nd set 59.99 chs., the mean of which is 60.00 chs. from last cor.+20.00 chs.=80.00 chs.

5400 ft. 80.00 N. 221 lks.+Correction 306 lks. N.=527 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 307th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S., and 307 M. stamped in the center.
Dug pits 36x36x18 ins. N., S., E. and W. from the cor. 6 ft. dist.
Raised a mound of earth 5 ft. base, 2 ft. high around the post.
A monument of gray, cone-shaped peak in edge of valley bears N. 82° W. about ½ mile dist.
Point of lava rock on top of sandstone cliff bears N. 38° 30′ W. about 1 mile dist.
Land, rough slope and valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and soapweed in valley; oak and pinon brush on slope.
Alt. 5400 ft.
Temp. 80°.

——308th mile——

S. 89° 49′ E. on the tangent to the parallel.
Over gently rolling valley land.

17.00 Cabin about 3 chs. S.

64.15 Dry bed of Covert Canon Creek, 80 lks. wide. water in holes, course S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing, the mean is 80.00 chs.

5300 ft. 80.00 N. 247 lks.+Correction 324 lks. N.=571 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom, 2 ft. in the ground for 308th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 308 M. stamped in the center.
Dug pits 36x36x18 ins. S., N., E. and W. from this cor. 6 ft. dist.
Raised a mound of earth 5 ft. base, 2 ft. high around the post.
Monument on round, red butte in valley bears N. 5° 2′ E.
S. salient of N. bluff bears N. 75° 52′ E.
Monument on gray cone in valley bears N. 53° 33′ W.
This cor. stands under E. and W. wire fence, that is supposed to be on the Darling line, though I have not been able to find corners along this part of the valley bearing the Darling marks.
Land, gently rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and cactus.
Alt. 5300 ft.
Temp. 76°.

June 23rd, 1903.
I examine the transit and compare the steel tapes with the standard, find all correct and in adjustment.

—309th mile—
S. 89° 48′ E. on the tangent to the parallel.
Over gently rolling land.
78.50 Dry gulch, course SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs., the mean of which is 80.00 chs.
5275 ft. 80.00 N. 275 lks. + Correction 342 lks. N. = 617 lks. N. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 309th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S., and 309 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post. Pits impracticable.
A cedar tree 14 ins. dia. bears S. 6° 20′ W. 705 lks. dist. marked N.M., 309 M., B.T.
A cedar tree 14 ins. dia. bears S. 29° W. 496 lks. dist. marked N.M., 309 M., B.T.
Land, gently rolling.
Soil, sandy loam, 3rd rate.
Vegetation, grass and cactus.
Alt. 5275 ft.
Temp. 70°.

Having previously examined the transit and found it to be in perfect adjustment,
At the point for the 309th mile cor.,
On June 2nd, 1903, at 2h 49m A. M., l.m.t., I observe Polaris at Eastern elongation, and mark a point in the line so determined on a plug driven in the ground N. of my station.
At 6h 30m A.M., June 2nd, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.
The magnetic bearing of this meridian is N. 12 40′ W.
This gives magnetic variation 12° 40′ E.
I now lay off an angle of 90° from this meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

——310th mile——

East on the tangent to the parallel.

Over rolling land, along North edge of Cimarron Valley.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.,
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

5300 ft. 80.00 N. .76 of a link+Correction 360 lks. N.=360.76 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 310th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M., on S. and 310 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 12 ins. dia. bears S. 46° W. 530 lks. dist., marked N.M., 310 M., B.T.
No other trees within limit.
Land, rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pinon, grass and cactus.
Alt. 5300 ft.
Temp. 72°.

311th mile

S. 89° 59' E. on the tangent to the parallel.
Over rolling land, at foot of bluffs.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

5200 ft. 80.00 N. 3 lks.+Correction 378 lks. N.=381 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with

flanges at the bottom 2 ft. in the ground for the 311th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 311 M stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 16 ins. dia. bears N. 31½° E. 227 lks. dist. marked Colo., 311 M., B.T.
A cedar tree 12 ins. dia. bears S. 70° E. 190 lks. dist. marked N .M., 311 M., B.T.
No other trees within limit.
Land, rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass; cactus and scattering pinon timber and brush.
Alt. 5200 ft.
Temp. 74°.

——312th mile——

S. 89° 59′ E. on the tangent to the parallel.
Over rolling land, at foot of bluffs N. side of Cimarron Valley.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point,
By 1st set 80.02 chs.,
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

5150 ft. 80.00 N. 7 lks. + Correction 396 lks. N. = 403 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for the 312th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S., and 312 M. stamped in the center.
Raised a mound of stone, 5 ft. base 2 ft. high, around the post.
Pits impracticable.
Land, rolling.

Soil, sandy and rocky, 3rd rate.
Vegetation, grass; cactus and scattering pinon timber and brush.
Alt. 5150 ft.
Temp. 78°.

——313th mile——

S. 89° 58′ E. on the tangent to the parallel.
Stadia measurement,
Angle 6′ =Rod 8.90 double =1780 ft.×.9891 =1760.60 ft.+C. =1.14 ft. =1761.74 ft. =26.69 chs.

5150 ft. 18.75 Foot of bluffs bears NW. and SE.; leave Cimarron Valley, ascend over broken rock.

26.69 On spur, slope S.
Stadia point,
Angle 5′ +Rod 8.80 ft. double =1760 ft.× .9924 =1746.62 ft. +C. =1.14 ft. =1747.76 ft. =26.48 chs. +26.69 chs. =53.17 chs.

40.00 James McClash's house, about 50 chs. S. on river bottom..
Orchard and alfalfa field.

53.17 Stadia point, on spur, slope SE.
Angle 11′ +Rod 9.20 ft. double=1840 ft.× .9636=1773.02 ft. +C. =1.13 ft. =1774.15 ft.= 26.88 chs. +53.17 chs. =80.05 chs.—.05 chs.= 80.00 chs.

60.00 Bottom of rocky gulch, course SE.

77.00 Foot of lava wall about 200 ft. high, bears NW. and SE.

79.44 On top of lava wall about 700 ft. above the valley, bears NW. and SE.

5850 ft. 80.00 N. 12 lks. +Correction 414 lks. N. =426 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 313th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 313 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.

Pits impracticable.
A volcanic peak bears S. 62° 15′ W. about 30 miles dist.
A grey cone of sandstone bears S. 19° 45′ E. about 3 miles dist.
This cor. stands on top of high bluff.
Land, rough and broken.
Soil, sandy and rocky, 4th rate.
Vegetation, scattering oak and pinon brush.
Alt. 5850 ft.
Temp. 80°.

——314th mile——

S. 89° 57′ E. on the tangent to the parallel.
Across mesa.

23.54 Darling's 19th mile bears North 5.86 chs.
The first cor. bearing the Darling marks I have found East of his 28th mile cor.
I destroyed this cor.

30.12 On E. wall of mesa, bears NW. and SE.
Thence by stadia measurement,
Angle 12°—Rod 9.65 ft. double—1930 ft.×.9568—1846.62 ft.+C.—1.12 ft.—1847.74 ft.—27.99 chs.+30.12 chs.—58.11 chs.

58.11 Stadia point,
Angle 5°—Rod 9.44 single—944 ft.×.9924—936.83+C.—1.14 ft.—937.97 ft.—14.21 chs.+68.11 chs.—72.32 chs.

72.32 Stadia point, thence by tape measurement,

5330 ft. 78.00 Dry bed of stream, bottom of Jesus Canon, 50 lks. wide, course SE.; ascend.

5350 ft. 80.00 N. 19 lks.+Correction 432 lks. N.—451 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground, for the 314th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 314 M. stamped in the center
Raised a mound of stone, 5 ft. base, 2 ft high around the post.
This cor. on West edge of rocky gulch, that comes from NE.

Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pinon timber; oak and aspen brush.
Alt. 5350 ft.
Temp. 80°.

——315th mile——

S. 89° 57′ E. on the tangent to the parallel.
Stadia measurement,
Angle 13′+Rod 9.00 ft. double=1800 ft.× .9494+1708.92 ft.+C.=1.12 ft.=17'0.04 ft.=25.91 chs.

.20 Bottom of rocky gulch, course SW.; ascend.

5830 ft. 25.91 Stadia point on wall of canon, bears NW. and SE. about 500 ft. above bottom of canon.
Enter scattering cedar and pinon timber, bears NW. and SE.
Thence by tape measurement,

80.00 Comes in head of rocky canon, course S.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering cedar and pinon timber; oak, pinon and cedar brush.

——316th mile——

S. 89° 56′ E. on the tangent to the parallel.
Difference between measurements of 62.09 chs. by 2 sets of chainmen is 6 lks., position of middle point.
By 1st set 62.12 chs.,
By 2nd set 62.06 chs.; the mean of which is 62.09 chs.+25.91 chs., stadia=88.00 chs.—80.00 chs.=8.00 chs. on 316th mile.

5800 ft. 8.00 N. 28 lks.+Correction 452 lks. N.=480 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4′ ft. long with flanges at the bottom 2 ft. in the ground for 315th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 315.1 M.

stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post. Pits impracticable.
A pinon tree 7 ins. dia. bears N. 59° 30′ W. 68 lks. dist. marked Colo., 315.1 M., B.T.
A pinon tree 5 ins. dia. bears S. 1° W. 86 lks. dist., marked N.M., 315.1 M., B.T.
No other trees within limit.
Alt. 5800 ft.
Temp. 75°.

5800 ft. 21.91 On wall of canon, bears NW. and SE.
Thence by stadia,
Angle 18°—Rod 7.90 double=1580 ft.×.9045 =1429.11 ft.+C.=1.09 ft.=1430.20 ft.=21.67 chs.+21.91 chs.=43.58 chs.

23.00 Foot of wall about 300 ft. high, bears NW. and SE.

43.58 Stadia point,
Angle 2°—Rod 9.75 ft. double=1950 ft.× .9988=1947.66 ft.+C.=1.15 ft.=1948.81 ft.= 29.52 chs.+43.58 chs.=73.10 chs.

5200 ft. 53.00 Dry bed of stream 30 lks. wide, course SE. Bottom of Flat-Head Canon about 600 ft. below last cor. ascend. ;

73.10 On low spur, slope SW. ; ascend.
Angle 20°+Rod 7.45 double=1490 ft.×.8830 =1315.67 ft.+C.=1.08 ft.=1316.75 ft.=19.95 chs.+73.10 chs.=93.05 chs.—80.00 chs.= 13.05 chs. on the 317th mile.

80.00 Comes on rough slope of Canon wall.
I advance this cor.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering cedar and pinon timber; oak pinon and cedar brush.

——317th mile——

S. 89° 55′ E. on the tangent to the parallel.

10.00 Foot of wall about 200 ft. high, bears NE. and SW.

13.05 Stadia point on top of canon wall, bears NE. and SW.

Thence by tape measurement,

5775 ft. 16.00 N. 39 lks.+Correction 472 lks. N.=511 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bed rock for 316th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 316.2 M. stamped in the center.
Raised a mound of stone 5 ft. base 2½ft. high around the post. Pits impracticable.
This cor. stands in brush.
No trees within limit, suitable for bearing trees.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering cedar and pinon timber.
Oak, cedar and pinon brush.
Alt. 5775 ft.
Temp. 70°.

5700 ft. 43.00 Brow of bluff, bears NW. and SE.; descend.
Difference between measurements of 64.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
By 1st set 64.04 chs.,
By 2nd set 63.96 chs.; the mean of which is 64.00 chs., from last cor.+16.00 chs.=80.00 chs.

5400 ft. 80.00 N. 49 lks.+Correction 486 lks. N.=535 lks. N. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 317th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 317 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
No bearing trees.
Land, rough and broken.

Soil, rocky and sandy, 3rd rate.
Vegetation, oak, cedar and pinon brush.
Alt. 5400 ft.
Temp. 70°

——318th mile——

S. 89° 55′ E. on the tangent to the parallel.
Ascend.

5600 ft. 30.00 On mesa, bears N. and S.

36.30 East edge of mesa, bears NW. and SW.; descend.

Thence by stadia measurement,
Angle 4°—Rod 9.60 ft. double=1920 ft.×.9951=1910.59 ft.+C.=1.15 ft.=1911.74 ft.=28.96 chs.+36.30 chs.=65.26 chs.

65.26 Stadia point,
Angle 8°—Rod 6.20 ft. double=1240 ft.×.9806=1215.94 ft.+C.=1.14 ft.=1217.08 ft.=18.44 chs.+65.26 chs.=83.70 chs.—80.00 chs.=3.70 chs. on the 319th mile.

80.00 Comes in dense brush on N. slope.
I advance this cor.
Land, rough and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, oak, cedar and pinon brush; and scattering pinon timber.

——319th mile——

S. 89° 54′ E. on the tangent to the parallel.

3.70 Stadia point,
Thence by tape.

5100 ft. 4.00 N. 63 lks.+Correction 505 lks. N.=568 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 318th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 318.05 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable.

A pinon tree 8 ins. dia. bears S. 31¾° E. 94 lks. dist. marked N.M., 318.05 M., B.T.
A pinon tree 8 ins. dia. bears N. 70° W., 40 lks. dist. marked Colo., 318.05 M., B.T.
No other trees suitable for bearing trees.
This cor. stands on spur, slope N. about 75 ft. above bottom of canon.
Alt. 5100 ft.
Temp. 70°.

June 24th, 1903.

I examine the transit and compare the steel tapes with the standard, find all correct and in adjustment.

Descend.

22.00 Bottom of Canon, course SE.

24.50 Darling's 14th mile cor. bears N. about 6 chs. from the tangent. A sandstone 26x10x8 ins., marked C. on N., 14 M on E., N.M. on S. and 1868 on W. faces, in mound of stone. I destroyed this cor.

30.00 Point on spur, slope SE.

5000 ft. 36.00 Dry bed of stream, 30 lks. wide, course South.
Bottom of Miller's Canon.

49.27 On spur, slope S. Stadia measurement from this point,
Angle 19° + Rod 8.20 ft. double = 1640 ft. × .8940 = 1466.16 ft. + C. = 1.08 ft. = 1472.25 ft. = 22.23 chs. + 49.27 chs. = 71.50 ft.

71.50 Stadia point on wall of canon about 600 ft. above bottom of canon, bears NE. and SW.
Thence by tape measurement,
Difference between measurements of 53.77 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 53.78 chs.
By 2nd set 53.76 chs.; the mean of which is 53.77 chs. + 22.23 chs., stadia = 76.00 chs. from last cor. + 4.00 chs. = 80.00 chs.

5500 ft.	80.00	N. 76 lks.+Correction 522 lks. N.=598 lks. N. from the tangent, Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 319th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 319 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high, around the post. Pits impracticable. Land, rough and broken. Soil, sandy and rocky, 3rd rate. Vegetation, scattering cedar and pinon timber; oak, cedar and pinon brush. Alt. 5500 ft. Temp. 75°.
		320th mile
		S. 89° 53' E. on the tangent to the parallel.
5500 ft.	9.70	East edge of mesa bears NW. and SE. Thence by stadia measurement, Angle 12°—Rod 13.00 ft. double=2600 ft.×.9568=2487.68 ft.+C.=1.12 ft.=2488.80 ft.=37.71 chs.+9.70 chs.=47.41 chs.
	44.00	Foot of bluff bears NW. and SE. Enter Cimarron valley.
	47.41	Stadia point, thence by tape measurement, Difference between measurements of 42.29 chs. by 2 sets of chainmen is -ks., position of middle point, By 1st set 42.30 chs., By 2nd set 42.28 chs.; the mean of which is 42.29 chs.,+37.71 chs., stadia=80.00 chs.
4900 ft.	80.00	N. 92 lks.+Correction 540 ft. N.=632 lks. N. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 320th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 320 M. stamped in the center. Dug pits 36x36x18 ins. N., E., S. and W. of the cor. 6 ft. dist.,

and raised a mound of earth, 5 ft. base, 2 ft. high, around the post.
Point of cliff bears N. 14° 25′ E. about ½ mile dist.
Top of sandstone butte in valley bears S. 79° E. about 1 mile dist.
SE. salient of cliffs bears S. 14° W. about 1 mile dist.
Land, rough and broken, and valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and cactus in valley; and oak, cedar and pinon brush on slopes.
Alt. 4900 ft.
Temp. 82°.

——321st mile——

S. 89° 53′ E. on the tangent to the parallel.
Over gently rolling valley land.

10.25 Ledge of red sandstone about 15 ft. high, bears NE. and SW.

27.00 Darling's 12th mile cor., bears N. about 8 chs. dist.
I destroyed this cor.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.,
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

4850 ft. 80.00 N. 110 lks.+Correction 558 lks. N.=668 lks. N. from the tangent,
Set temporary cor.
See page 410.
Land, gently rolling, valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and cactus.
Alt. 4850 ft.
Tem. 82°.

——322nd mile——

S. 89° 52′ E. on the tangent to the parallel.

38.30 Dry arroyo, course S.

	58.33	Stadia measurement, from this point, Angle 11° +Rod 8.05 ft. double=1610 ft. × .9636=1551.40 ft. +C.=1.13 ft.=1552.53 ft.= 23.52 chs.+58.33 chs.=81.85 chs.—80.00 chs. =1.85 chs. on the 323rd mile.
4850 ft.	60.00	Foot of bluff, bears NW. and SE.; ascend.
	80.00	Comes among big blocks of stone on steep SW. slope.
		I advance this cor.
		Land, valley and hillside.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and cactus in valley.
		Scattering oak, cedar and pinon brush on slope.

——323rd mile——

S. 89° 52′ E. on the tangent to the parallel.

	1.85	Stadia point, thence by tape.
		Difference between measurements of 60.48 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 60.49 chs.,
		By 2nd set 60.47 chs.; the mean of which is 60.48 chs.+23.52 chs., stadia=84.00 chs.— 80.00 chs.=4.00 chs. on 323rd mile.
5200 ft.	4.00	N. 130 lks.+Correction 576 lks. N.=706 lks. N. from the tangent.
		This offset places the point for this cor. over ridge on N. slope.
		Set temporary cor.
		Alt. 5200 ft.
		Temp. 82°.
		Descend.
4800 ft.	35.00	Foot of bluff bears NW. and SE.; enter Cimarron valley.
		Difference between measurements of 76.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
		By 1st set 76.04 chs.,
		By 2nd set 75.96 chs.; the mean of which is 76.00 chs. from last cor.+4.00 chs.=80.00 chs.

4800 ft.	80.00	N. 150 lks. + Correction 594 lks. N. = 744 lks. N. from the tangent, Set temporary cor. Land, rough slope and valley. Soil, sandy loam, 3rd rate. Vegetation, grass and cactus in valley. Pinon and oak brush on slope. Alt. 4800 ft. Temp. 80°.

——324th mile——

		S. 89° 51′ E. on the tangent to the parallel. Over gently rolling valley.
	.50	Wagon road, bears N. and S.
	2.00	Dry arroyo, course SE.
	31.00	Darling's 9th mile cor., bears N. about 9.00 chs. dist. I destroyed this cor. Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.
4875 ft.	80.00	N. 172 lks. + Correction 612 lks. N. = 784 lks. N. from the tangent, Set temporary cor. Land, gently rolling valley. Soil, sandy loam, 3rd rate. Vegetation, grass and cactus. Alt. 4875 ft. Temp. 75°.

——325th mile——

		S. 89° 50′ E. on the tangent to the parallel.
	6.20	Wagon road, bears NW. and SE.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point, By 1st set 80.01 chs., By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
4890 ft.	80.00	N. 196 lks. + Correction 630 lks. N. = 826 lks. N. from the tangent, Set temporary 325th mile cor., and astrono-

mical monument No. 7. This places this temporary monument 422 lks. S. of the 37th parallel, as determined by astronomical observations made on the nights of Nov. 3rd, 4th, and 7th, 1902. This being within the limit of 3″ of arc, allowed by the Hon. Commissioner.

See page 411.

Land, nearly level valley.
Soil, sandy loam, 3rd rate.
Vegetation, grass and sage.
Alt. 4890 ft.
Temp. 74°.

June 25th, 1903.

On the afternoon of June 6th, 1903, I carefully adjust the transit as to levels and collimation, and compare the steel tapes with the standard, and find them of correct length.

At the point for the temporary 325th mile cor., June 7th, 1903, at 2h 30m A. M., l.m.t., I observe Polaris at Eastern elongation, and mark a point in the line, so found, on a plug driven in the ground 10 chs. N. of my station.

At 7h 10m A. M., I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 12° 45′ W.

This gives magnetic declination 12° 45′ E.

I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

——326th mile——

East on the tangent to the parallel.

9.13 Our temporary astronomical station 1.45 chs. N.

16.10 Dry bed of Sheep Pen Canon Creek, 20 lks. wide, course S.

25.00 Foot of hills bears NW. and SW.
Leave Cimarron valley; ascend.
Angle 14° + Rod 12.60 double = 2520 ft. × .9415 = 2372.58 ft. + C. = 1.11 ft. = 2373.69 ft. = 35.96 chs. + 25.20 chs. = 61.16 chs.

25.20 Stadia point, thence by stadia measurement.

32.20 Darling's 7th mile cor., bears N. 1.15 chs. dist.
A sandstone 28x12x4 ins. in pile of stone.
I destroy this cor.

61.16 Stadia point on top of wall, W. edge of high mesa, about 700 ft. above Cimarron Valley, bears NE. for about 10 chs., then NW. and S. of line bears SW.
Difference between measurements of 44.04 chs., by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 44.05 chs.,
By 2nd set 44.03 chs.; the mean of which is 44.04 chs. + 35.96 chs. = 80.00 chs.

5550 ft. 80.00 N. .76 of a link from the tangent,
Set a temporary cor.
Land, rough and broken and mesa.
Vegetation, grass and cactus.
Soil, sandy, 3rd rate.
Alt. 5550 ft.
Temp. 70°.

——327th mile——

S. 89° 59′ E. on the tangent to the parallel.
Over mesa land.

20.50 Head of draw, drains SW.

32.25 Darling's 6th mile cor. bears N. 130 lks. dist.
A lava stone 16x12x6 ins. marked C. on N., 6 M. on E., N.M. on S. and 1868 on W. faces.
I destroyed this cor.

All the Darling corners from here Eastward to the McComb cor. were found and the marks obliterated.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.,
By 2nd set 79.98 chs., the mean of which is 80.00 chs.

5525 ft. 80.00 N. 3 lks. from the tangent.
Set temporary cor.
Land, mesa, gently rolling.
Soil, sandy, 3rd rate.
Vegetation, grass and cactus.
Alt. 5525 ft.
Temp. 70°.

——328th mile——

S. 89° 59′ E. on the tangent to the parallel.
Over mesa land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

5490 ft. 80.00 N. 7 lks. from the tangent.
Set temporary cor.
Land, gently rolling mesa.
Soil, sandy, 3rd rate.
Vegetation, grass and cactus.
Alt. 5490 ft.
Temp. 70°.

——329th mile——

S. 89° 58′ E. on the tangent to the parallel.
Over mesa land.
63.00 Head of rocky gulch, 50 ft. deep, course SE.
76.00 Head of rocky canon 75 ft. deep, course S.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,

By 1st set 80.04 chs.,
By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

5450 ft. 80.00 N. 12 lks. from the tangent,
Set temporary cor.
Land, gently rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, cactus, scattering cedar along gulches.
Alt. 5450 ft.
Temp. 72°.

June 7th, 1903.

I examine the transit, compare the steel tapes with the standard, find all correct and in adjustment.

——330th mile——

S. 89° 57′ E. on the tangent to the parallel.
20.00 Enter timber and brush.
30.00 Head of canon, course NE.
5300 ft. 50.00 On spur, slope NE.
5200 ft. 80.00 Comes in canon, bears S.
Impracticable to establish the cor at this point.
Land, rough and broken.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, cedar and pinon timber; oak brush.
Alt. 5200 ft.
Temp. 70°.

——331st mile——

S. 89° 57′ E. on the tangent to the parallel.
Ascend.
5350 ft. 8.00 N. 20 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long, with flanges at the bottom 2 ft. in the ground for the 330th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 330.1 M. stamped in the center.

Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 6 ins. dia. bears S. 49½° E. 12 lks. dist. marked N.M., 330.1 M., B.T.
No other trees within limit.
This cor. stands on E. bluff about 110 ft. above bottom of canon, bears N. and S.
Alt. 5300 ft.
Temp. 70°.

20.00 Rocky canon about 100 ft. deep, course S.

41.23 A sandstone 16x10x6 ins. in what has once been a very large mound of earth about 10 ft. in dia., bears N. 2.05 chs. from the tangent.
This stone is marked 103° L. on N., N.M. 1874 and the word "Major" below on S.
This, I believe, to be the Col. Johnson monument.

57.00 Head of rocky canon, course SE.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 80.05 chs.,
By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

5110 ft. 80.00 N. 27 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 331st mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 331 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post.
Pits impracticable.
No bearings.
Land, mesa, somewhat broken.
Soil, sandy, 3rd rate.
Vegetation, grass, cactus; scrub cedar and pinon in the canons.
Alt. 5110 ft.
Temp. 70°.

332nd mile

S. 89° 56′ E. on the tangent to the parallel

1.53 Stadia measurement,
Angle 2′—Rod 8.15 double =1630 ft. × .9988 =1628.04 ft. + C. =1.15 ft. =1629.19 ft. =24.68 chs. + 1.53 chs. =26.21 chs.

17.00 Head of canon, course SE.

26.21 Stadia point,
Stadia measurement,
Angle 0° Rod 8.00 double =1600 ft. + C. =1.15 ft. =1601.15 ft. =24.26 chs. + 26.21 chs. =50.47 chs.

37.00 Bottom of canon, about 150 ft. deep, course SE.; ascend.

50.47 Stadia point on mesa. E. side of canon bears NW. and SE.
Thence by tape measurement,
Difference between measurements of 31.06 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 31.07 chs.
By 2nd set 31.05 chs.; the mean of which is 31.06 chs. + 48.94 chs. =80.00 chs.

5100 ft. 80.00 N. 37 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 332nd mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 332nd M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
No bearings.
This cor. stands on mesa about 1½ chs. S. of canon wall, that bears NW. and NE.
Land, mesa, broken by canons.
Soil, sandy, 3rd rate.
Vegetation, grass and cactus on mesa; scrub cedar in canons.
Alt. 5100 ft.
Temp. 70°.

——333rd mile——

S. 89° 55′ E. on the tangent to the parallel. Difference between measurements of 29.1 chs. by 2 sets of chainmen is nothing; the mean is 29.10 chs.

29.10 On wall of canon bears NE. and SW.
Thence by stadia measurement,
Angle 7°—Rod 6.70 double=1340 ft.×.9851 =1320.03 ft.+C.=1.14 ft.=1321.17 ft.=20.02 chs.+29.10 chs.=49.12 chs.

29.55 Capt. Macomb's monument, which was Darling's initial cor. bears N. 143 lks. from the tangent. The offset for this point being 41 lks., places the monument 93 lks. N. of the boundary line as established by me.
This monument consists of a pile of stone about 10 ft. in dia. and 6 ft. high, on top of which I found a stone 18x12x4 ins. marked 103 W.L.-1868. I obliterated the marks on this stone.

40.00 Bottom of canon about 300 ft. deep, course NE.
Ascend.

49.12 Stadia point on spur, slope N., about 100 ft. above bottom of canon.
Stadia measurement,
Angle 8°—Rod 7.50 double=1500 ft.×.9806 ft.=1470.90 ft.+C.=1.14 ft.=1472.04 ft.=22.30 chs.+49.12 chs.=71.42 chs.

4600 ft. 68.00 Bottom of canon, course S.

71.42 Stadia point,
Angle 18°+Rod 10.50 single=1050 ft.×.9045 =949.72 ft.+C.=1.09 ft.=950.81 ft.=14.40 chs.+71.42 chs.=85.82 chs.—80.00 chs.=5.82 chs. on 334th mile.

80.00 Comes on steep slope of canon wall. Impracticable to establish the cor. at this point.
Land, broken, rough and rocky.
Soil, rocky and sandy, 3rd rate.
Vegetation, grass and sage; scrub cedar and pinon.

——334th mile——

S. 89° 55′ E. on the tangent to the parallel.

5.82 Stadia point on canon wall, bears N. and S. Thence by tape measurement,

4900 ft. 6.40 N. 50 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 10 ins. in the ground to bed rock, for 333rd mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S., and 333.08 stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable.
A cedar tree 7 ins. dia. bears N.4½° E. 109 lks. dist. marked Colo 333.08 M., B.T.
A pinon tree 5 ins. dia. bears S. 74½° E. 74 lks. dist. marked N.M., 333.08 M., B.T.
No other trees within limits suitable for bearing trees.
Alt. 4900 ft.
Temp. 68°.
Thence by stadia measurement; descend.
Angle 8°—Rod 9.33 double=1866 ft.×.9806 =1829.80 ft.+C.=1.14 ft.=1830.94 ft.=27.74 chs.+6.40 chs.=34.14 chs.

34.14 Stadia point, at foot of hill about 200 ft. below cor. bears NW. and SW. Thence by tape measurement, across mouth of little valley from SW.

70.90 Point on E. slope near foot of butte.
Difference between measurements of 45.86 chs. by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 45.88 chs.,
By 2nd set 45.84 chs.; the mean of which is 45.88 chs.+34.13 chs.=80.00 chs.

4640 ft. 80.00 N. 62 lks. from the tangent,
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 334th mile cor.
A brass cap on the top of the pipe has raised

letters, Colo. on N., N.M. on S. and 334 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high around the post. Pits impracticable.
A x on a sandstone 15x10x8 ft. above ground bears S. 31° W. 38 lks. dist., marked N.M., 334 M., B.O.
A x cross on a sandstone 20x12x8 ft. above ground bears N. 6° 10′ E. 200 lks. dist. marked Colo., 334 M., B.O.
Land, rough and broken.
Soil, sandy, 3rd rate.
Vegetation, grass, sage, cactus; scattering scrub cedar and pinon brush.
Alt. 4640 ft.
Temp. 68°.

June 8th, 1903.

I examine the transit, compare the steel tapes with the standard, and find [redacted] correct and in adjustment.

——335th mile——

S. 89° 54′ E. on the tangent to the parallel. Descending gradually across valley.
Enter Carriso Valley, bears NE. and SW.

71.00 A stone monument 12x12x24 ins. above ground firmly set, bears North 185 lks. from the tangent. Our offset for this point is 75 lds. This would place this monument 110 lks. N. of the boundary line as run by me. This monument is marked "Colo." on N., C.M. on E., "NE. cor N.M." on S. and "C.C. 1900 on W., of the cor. A dressed sandstone shaft 15 ins. square, 4½ ft. above ground and firmly set bears N. from the same point on the tangent 15.93 chs.
This shaft is marked COLORADO on N., 37 N. L. on E., 103 W. L. on S., and 1881 on W.
I left both these monuments as I found them.

[redacted]

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 80.01 chs.,
By 2nd set 79.99 chs.; the mean of which is 80.00 chs.

4600 ft. 80.00 N. 76 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 335th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., Okla. on S. and 335 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base, 2 ft. high, around the post.
N. edge of round butte bears S. 89° E. about 3 miles dist. Small round butte in valley bears S. 63° 10′ W. about 2 miles dist.
Land, gently rolling, valley.
Soil, sandy, 2nd rate.
Vegetation, grass and cactus.
Alt. 4600 ft.
Temp. 60°.

1902.

WE HEREBY CERTIFY That we assisted HOWARD B. CARPENTER, United States Surveyor and Astronomer, in re-surveying all parts or portions of the South Boundary of the State of Colorado which are represented in the foregoing field notes as having been re-surveyed by him and under his direction; and that said survey has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the corner monument established according to instructions furnished by the Commissioner of the General Land Office.

(Signed) L. B. NEIGHBOUR, Transitman.
E. POTTER LOCKWOOD, Chainman.
WALTER STONE, Chainman.
ERNEST G. SPINNEY, Chainman.
LINUS OLSON, Chainman.
C. D. CARPENTER, Moundman.

J. W. MILLER, Moundman.
his
CHAS, X WINDQUEST, Moundman.
mark
GROVER BOWMAN, Axman.
O. J. Bowman, Axman.
Wm. D. SKINNER, Rodman.
J. L. WENTZ, Flagman.
J. G. MYERS, Flagman.

Subscribed and sworn to before me this 15th day of December, 1902.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

1903.

FINAL OATHS OF ASSISTANTS.

WE HEREBY CERTIFY That we assisted HOWARD B. CARPENTER, United States Surveyor and Astronomer, in re-surveying all those parts or portions of the South Boundary of the State of Colorado which are represented in the foregoing field notes as having been re-surveyed by him and under his direction; and that said survey has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the corner monuments established according to instructions furnished by the Commissioner of the General Land Office.

(Signed) OSCAR McCLELLAN, Transitman.
WALTER STONE, Chainman.
Wm. L. HORTON, Chainman.
C. HOLLIDAY, Chainman.
POTTER LOCKWOOD, Chainman.
G. D. CARPENTER, Moundman.
his
CHAS. X WINDQUIST, Moundman.
mark
LINUS OLSON, Moundman.
HARRY WEIMER, Axman.
SILAS S. WEIMER, Axman.
ED. P. BLANCHARD, Rodman.
FRED F. LOCKWOOD, Flagman.
Wm. A. PINCKARD, Flagman.

Subscribed and sworn to before me this 21st day of July, 1903.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

1903.

FINAL OATH OF ASSISTANTS.

We, E. P. Blanchard, F. E. Wright and Andrew Ferrara, do solemnly swear that we assisted Howard B. Carpenter, U. S. Surveyor and Astronomer, in resetting all those monuments and mile corners on that portion of the 37th parallel of North Latitude, in the re-survey of the South Boundary of the State of Colorado, represented in the foregoing field notes as having been reset by him, and that the said monuments and mile corners, have been established in accordance with the Manual and his special instructions, to the best of our knowledge and belief.

(Signed) ED. P. BLANCHARD, Chainman.
F. E. WRIGHT, Chainman.
his
ANDREW X FERRARA, Moundman.
mark

Subscribed and sworn to before me this Twenty-ninth day of October, 1903.

(Signed) HOWARD B. CARPENTER,
U. S. Surveyor and Astronomer.

FINAL OATH OF U. S. SURVEYOR AND ASTRONOMER.

I, Howard B. Carpenter, United States Surveyor and Astronomer, do solemnly swear that in pursuance of a contract with Hon. Binger Herman, Commissioner of the General Land Office, bearing date of July 7th, 1902, and in strict conformity to the laws of the United States and the instructions furnished me by Acting Commissioner, W. A. Richards, I have well, faithfully and truly, in my own proper person, resurveyed, re-marked and re-established the boundary line between the State of Colorado and the Territory of New Mexico, —and the State of Colorado and the Territory of Oklahoma,

—the same being that portion of the parallel of thirty-seven degrees North Latitude, lying between the twenty-fifth and the thirty-second degrees of West Longitude from Washington; that I have destroyed such evidences as I have been able to find, of corners monuments originally established on said line by E. N. Darling, U. S. Surveyor.

And I do further solemnly swear that all the corners of said re-survey have been established and perpetuated in strict accordance with the Manual of surveying instructions and the special written instructions of the Hon. Acting Commissioner and in specific manner described in the field notes and that the foregoing are the true field notes and astronomical notes of such re-survey and should any fraud be detected I will suffer the penalty of perjury, under the provisions of an act of Congress approved August 8th, 1846.

(Signed) HOWARD B. CARPENTER,
United States Surveyor and Astronomer.

Subscribed and sworn to before me this 5th day of January, 1904.

(SEAL) (Signed) LOMI KIRK,
Clerk of the United States Circuit Court for the District of Wyoming.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
February 25th, 1904.

The foregoing field notes of the re-survey of the Boundary Line between the State of Colorado and the Territories of New Mexico and Oklahoma, executed by Howard B. Carpenter, U. S. Surveyor, under his contract with the Commissioner of the General Land Office, dated July 7th, 1902, having been examined and found correct are hereby approved.

(Signed) W. A. RICHARDS,
Commissioner.

DEPARTMENT OF THE INTERIOR)
U. S. Surveyor General,)
Santa Fe, New Mexico)

I, Lucius Dills, U. S. Surveyor General for the District of New Mexico, hereby certify that the foregoing 434 pages

of type-written matter is a true and correct copy of the Duplicate Original field notes now on file in my office, of the survey of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, as executed by Howard B. Carpenter, U. S. Surveyor, under instructions from the Commissioner of the General Land Office; and that this Copy is a full and complete record of such survey except the Astronomical Data and Calculations upon which the surveyor based the establishment of the Astronomical Monuments placed by him at intervals along and upon said line of survey.

Witness my hand and Official Seal, at my office in the City of Santa Fe, State of New Mexico, on this the 8th day of November, 1918.

(*SEAL*)

LUCIUS DILLS,
U. S. Surveyor General for New Mexico.

FILE COPY

1920

IN THE

Supreme Court of the United States

ORIGINAL. No. [redacted]

THE STATE OF NEW MEXICO

v.

THE STATE OF COLORADO

ANSWER AND CROSS BILL OF THE STATE OF COLORADO TO THE BILL OF COMPLAINT.

VICTOR E. KEYES,
Attorney General of Colorado
WILLIAM R. RAMSEY,
Assistant Attorney General
CHARLES ROACH,
Deputy Attorney General

[redacted] CARPENTER,
Of Counsel.

Eastwood Printing Co., 1537 Champa Street, Denver.

IN THE SUPREME COURT OF THE UNITED STATES

ORIGINAL, NO. 25.

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO

To the Honorables, the Chief Justice and Associate Justices of the Supreme Court of the United States:

The Answer and Cross Bill of the State of Colorado to the Bill of Complaint of the State of New Mexico.

And now comes the State of Colorado, the defendant, and for answer to said bill, says:

I

This defendant admits that the ground upon which the Court's jurisdiction of the matters set forth in the bill of complaint depends, is that the said bill sets out a controversy between two states of which this Court has original jurisdiction.

II

This defendant admits that by the legislation of Congress, and by the Constitution of the State of New Mexico under which the said State was admitted into the Union of States, the northern boundary line thereof extends along the 37th parallel of North latitude from the intersection of said parallel with the 32nd meridian of longitude West from Washington in an easterly direction to the point where said parallel of latitude intersects the 103rd meridian of longitude West from Greenwich, and avers that the State of New Mexico was admitted into the Union of States on the 5th day of January, 1912.

III

This defendant admits that on the 7th day of July, 1902, Howard B. Carpenter, a United States Surveyor, entered into a contract with the United States to re-survey, re-establish and re-mark the boundary line between Colorado and the Territories of New Mexico and Oklahoma, and that in pursuance of said contract the said Carpenter did thereafter proceed to re-survey, re-establish and re-mark the said boundary line as is shown by the record and field notes of his work, and admits that said field notes were approved by the then Commissioner of the General Land Office; but defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by either the State of

Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm the said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which passed the Senate and the House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with his objections thereto, which Resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter survey, and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is hereto attached and made a part hereof.

IV

This defendant denies that the line surveyed and established by the said Carpenter, as shown by his field notes, is the true or correct boundary line between the said two states; admits that in disregard of said Carpenter line it has exercised jurisdiction over a considerable amount of territory South of said Carpenter line, and has levied and collected taxes upon property South of said line, and through its Courts, has exercised both civil and criminal jurisdiction over persons and property lying South of said line, but denies that said acts, doings, pretenses or claims of the State of Colorado, or any of the same, are contrary to equity or good conscience or tend to the manifest or any wrong, injury or oppression of the State of New Mexico, or of its citizens or owners of property within its boundaries, or that said acts or any thereof were or are unlawful or in usurpation of the jurisdiction, rights or authority of said State of New Mexico.

V

For further defense to said bill of complaint, this defendant avers that in the Act of Congress, approved March 3rd, 1875, to enable the People of Colorado to form a Constitution and State government, and be admitted into the Union, (18 Statutes at Large, 474), and also by the Constitution adopted by the vote of the People of Colorado, and under which the State of Colorado was admitted into the Union by Proclamation of President Grant, August 1st, 1876, the 37th parallel of North latitude between the 25th and 32nd meridians of longitude West from Washington, was fixed as the southern boundary line of that State; that pursuant to authority of an Act of Congress, approved March 2nd, 1867, (14 Statutes at Large, 466), Ehud N. Darling, United

States Surveyor and Astronomer, by the most approved methods of the time, surveyed and established in the year 1868, the 37th parallel of North latitude so far as it constituted the boundary line between the Territories of Colorado and New Mexico, and marked the same upon the earth's surface by mile corners and monuments, a copy of which survey together with the field notes of his work is attached hereto and made a part hereof, which field notes of said survey were examined and approved on the 30th day of April, 1869, by the Honorable Joseph S. Wilson, Commissioner of the General Land Office, as appears by his certificate to that effect attached to said field notes.

Defendant avers that for more than thirty (30) years, the position of the said Darling line remained undisputed, and the correctness of its technical execution unquestioned, and as so established the said Darling line has been generally recognized and acquiesced in by both of the States herein involved, and accepted by the Federal government, and is now recognized and accepted by the Federal government as the true and subsisting boundary line between Colorado and New Mexico; and by reason of the right and title acquired as hereinbefore set forth, this defendant from the time said boundary was so established in 1868 to the present time, has held lawful and rightful possession of and exercised dominion and sovereignty, and now claims the same, over the territory down to the said southern boundary line as established by the said Darling, and no farther; county lines have been formed, towns and settlements have grown up, school districts, election districts, voting precincts, land districts and water districts have been created with reference to said line, public officers have been elected, property has been assessed, taxes levied and collected under the authority of the State of Colorado and its courts of both civil and criminal jurisdiction have exercised unquestioned jurisdiction in all places North of said boundary line, and the State of New Mexico has exercised like jurisdiction in all places South of said line. County maps, State maps and maps prepared by the Federal government have for more than forty years last past delimitated said boundary according to said Darling survey, and government post offices have been established as being in Colorado when above said line, and in New Mexico when below said line, and public land surveys on both sides of said line were closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico fixed by reference to said line.

The 37th parallel of North latitude, as established by Howard B. Carpenter, passes through several towns lying wholly within the State of Colorado, according to the boundary as originally surveyed by Darling, and along the entire line there is a material, and in many places, excessive variance between the lines of the two surveys, and the effect of said Carpenter survey if declared the

true boundary line would be to remove a considerable strip of territory which is now within the State of Colorado, according to the Darling survey, and place it in the State of New Mexico.

The stone monument established by Capt. Macomb U. S. A. of the Topographical Bureau in 1858, under direction of the War Department, marking the intersection of the 37th. parallel of North Latitude with 103° of West Longitude from Greenwich, adopted as the initial point of the Darling Survey, was designated as the northwest corner of Indian Territory, now State of Oklahoma, in 1874 by John J. Major, U. S. Surveyor and Astronomer, in the survey and marking of the boundary between Indian Territory and Colorado Territory. The line attempted to be established by said Carpenter passed 93 lks. south of said Macomb monument and departed from the boundary lines established by both Darling and Major, and said Carpenter obliterated the marks upon said Macomb monument, theretofore and since hitherto recognized as the corner upon the south line of Colorado and common to the States of New Mexico and Oklahoma, and attempted to relocate said common corner at a point about two miles easterly from said long established and accepted Macomb monument.

The said Carpenter survey consisted of a new fixation of the 37th parallel of North latitude independent of the line established by Darling in 1868, and not only failed of confirmation by Congress, but the Federal government up to the present time has declined to recognize the said Carpenter survey as the true boundary line between the said two states, and on the contrary has accepted and still accepts the said Darling survey as the true and correct boundary line between said two states.

All of which matters and things as hereinbefore stated, this defendant avers to be true and this defendant pleads the same in bar to the bill of complaint, and prays the judgment of the Court whether it shall further answer said bill.

Wherefore, having answered fully all the matters in plaintiff's bill set forth, defendant prays this Honorable Court that the prayer thereof be not granted, but that the Court decree that the boundary line between the State of New Mexico and the State of Colorado be, in accordance with said Darling survey, the true boundary line between the said two states, and that the said bill be dismissed and the defendant go hence with its costs in this behalf incurred, and that this defendant have such other and further relief as may be found necessary and as to the Court shall seem meet and proper.

CROSS BILL.

And now by way of cross complaint and for affirmative relief against the plaintiff, your orator, the State of Colorado, shows to

the Honorables, the Chief Justice and Associate Justices of the Supreme Court of the United States:

That the true boundary line between plaintiff and defendant is described in the foregoing answer and is fully and correctly shown and delineated in the field notes and survey made in 1868, by Ehud N. Darling, attached hereto and made a part of this cross bill, as well as a part of said answer, and for this cross bill defendant adopts the allegations of fact contained in the foregoing answer and makes the same a part of this cross bill, as fully and to all intents and purposes as if the said allegations were set out in detail in this cross bill; and defendant further avers the said Carpenter in making his said survey destroyed and obliterated many of the monuments and corners established by said Darling in making his said survey.

Wherefore, your orator, to the end that it may obtain the relief to which it is justly entitled, and avoid future controversies in reference hereto, prays the Court to grant unto your orator such process of this Honorable Court as may be appropriate to require the plaintiff, the State of New Mexico to appear and answer (not under oath, answer under oath being hereby expressly waived) to the several allegations in this cross bill contained; and that upon the final hearing hereof the true southern boundary line of the State of Colorado and the northern boundary line of the State of New Mexico, be declared and decreed by this Court to be the line established as aforesaid by Ehud N. Darling in the year 1868, and as the same is shown by the field notes of his work, attached hereto and made a part hereof, and that the defendant have such other and further relief as may be found necessary in order to correctly restore, re-establish and re-mark said Darling line as the boundary line between the plaintiff and defendant, and as to the Court shall seem meet and proper, and that the defendant have and recover its costs herein incurred.

THE STATE OF COLORADO.

By

VICTOR E. KEYES,
Its Attorney General,

WILLIAM R. RAMSEY,
Assistant Attorney General.

CHARLES ROACH,
Deputy Attorney General.

DELPH E. CARPENTER,
Of Counsel.

VETO MESSAGE
OF PRESIDENT ROOSEVELT
IN RE: COLORADO BOUNDARY LINE

December 19, 1908.

To the Senate:

I return herewith, without approval, Senate joint resolution No. 78, "Establishing the boundary line between the States of Colorado and Oklahoma and the Territory of New Mexico", for the reasons set forth in the following communication of the Attorney-General:

"I have the honor to report, with respect to joint resolution S. R. 78, referred by you to this department, that the purpose of the said resolution appears to be to correct the boundary line between the Territory of New Mexico and the States of Colorado and Oklahoma. The practical effect of establishing the new boundary line, so far as the State of Colorado is concerned, would be to remove from the jurisdiction of that State and add to the Territory of New Mexico a strip along nearly the whole of the southern boundary of the said State, in which there are located at least five post-offices and an appreciable number of inhabitants. So far as I am aware no action has been taken by the legislature of the State of Colorado assenting to or accepting the location of the boundary as proposed in this resolution, and from such inquiry as I have been able to make in the very limited time since the resolution reached me, I am led to think that such assent or acceptance on the part of the State is improbable. Under these circumstances, I think it is of very doubtful expediency to have the line mentioned in the resolution accepted by the United States as the true boundary. It is not necessary to express an opinion as to the legal effect of such a resolution upon the rights of the United States or of the Territory of New Mexico or the duties of federal or territorial officers; but it is clear that the resolution would not be binding upon the State of Colorado, and its adoption might lead to conflicts of jurisdiction within the long strip of territory to which I have referred, and possibly to the escape from legal punishment of those guilty of crimes committed within the said strip. If it is deemed desirable to establish the true boundary line, an appropriate method to effect this would be to invoke, by appropriate proceedings, the original jurisdiction of the Supreme Court."

"I therefore respectfully advise that the joint resolution in question do not receive your signature."

THEODORE ROOSEVELT.

The White House, December 19, 1908.

Field notes of the survey of the 37th Parallel of North Latitude, so far as it constitutes the North boundary of New Mexico, commencing at the 103° and terminating at the 109° of West Longitude from Greenwich, by

EHUD N. DARLING

Surveyor and Astronomer.

Under His Contract, Dated May 22nd, 1868.

NAMES OF ASSISTANTS

JNO. E. McMANUS NORTH A. HAIGHT	Chairmen
ROBERT DARLING SAMUEL MEYERS OTTO MANGOLD	Cornermen
JOEL B. DURNALL JOHN E. JONES	Flagmen

J. WEISSNER, Astronomer

ALONZO MACE, Asst. Astronomer

Commenced July 19, 1868

Completed November 18, 1868

Standard chain compared with standard measure at Surveyor General's Office, Leavenworth, Kansas, June 18, 1868.

Measuring Chain compared with standard and found correct.

CHAINS

A transit of Troughton & Syms manufacture, London England, was used in running the boundary. It having two telescopes one on the upper and one on the lower limb; and asimuth circle with two verniers to 30s with reading microscopes attached, and verticle circle and vernier also reading to 30s. A solar compass of Youngs make Phila, was used in establishing corners. After carefully adjusting my transit in all its parts,—in order to determine the asimuth at the stone monument established by Capt. Macomb, U. S. A. of the Topographical bureau in 1858 under direction of the War Dept. for marking the 103° of West Longitude from Greenwich, I made the following observations on Polaris.

Chrononeter fast on mean solar time. July 19th M.—5h 58′ 56″, with a losing rate of 30s pr day, on mean solar time.

Observations of Polaris. July 19th, 1868, lower transit. Time of observations marked by Chronometer P. M.

	11h. 38″. 30′	
Upper Transit	10 . 56 . 19	
Chronometer interval	11 . 17 . 49	
Correction for Chronometer rate		14.12+
Mean Solar interval		11. 18. 03. 12
Reduction to Sidereal time		1. 51. 38
Sidereal interval		11. 19. 54. 50
		—12.
		40. 05. 5

Computation of error of asimuth.

Δ 20.02.75=1202.75=18041.25″ log.=		4.2562666
2	d cat 88° 36′ .5	8.3877104
	Sec. 37	0.0976514
	a 551″ 60=9′ 11″ .6	2.7504335

Therefore the instrument asmuitheal deviation is 9′ 12″ East. The magnetic variation 12° 36′ East, as read by vernier, true variation 12° 45′ 11″. I therefore turn the upper telescope West 90.09′ .11″, as near as possible, the vernier A. B. reading to 30″.

CHAINS

The cobble stone monument established by Capt. Macomb U. S. A. is 8 feet at base, conical shape, 5 feet high and 2½ feet top. In order to better perpetuate the initial point I set a stone 30x10x8 imbedded 20 in. in monument with 10 in. projecting above same engraved on the SE Ind. T. on the SW -NM- on the NW -Col T.- on the NE 1868 and 103° WL.

From which point a
Conical Peak, bears N 15 W. 8 miles dist.
Point of Bluff bears N 74½ E. 60 chs. dist.
Point of Bluff bears N 80½ E. 45 chs. dist.
Point of Bluff bears S 75½ E. 20 chs. dist.
Point of Bluff bears N 54½ W. 65 chs. dist.
Stone mound is 75 lks. West of Canon, 250 feet deep, bears N N E.

——Thence West on Tangent, on 1st Mile——

Variation 12° 45′ East.

61.50 Top of steep bluff and enter canon 200 feet deep, bears S S E.

80.00 Offset from tangent to Parallel to 1st mile corner. Marked sand stone 15x10x4 : M—and deposited it, 3½ feet in earth. Built conical mound of stone on side hill, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x14x8 projecting 8 in. above mound, marked on the North, South, West and East sides -C- NM- 1868- NM- respectively.
No natural objects near.
Surface except canon level.
Soil 3rd rate.

——West on 2nd Mile——

Variation 12° 14′ East.

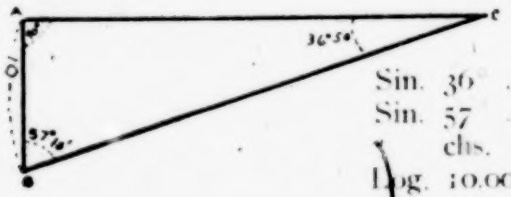
0.60 Top of bluff, bears North and South.

17.50 Canon, 75 feet deep, bears S S E.

23.00 Leave canon, bears S S E.

42.00 To canon, 150 feet deep bears S S E. It being impossible to measure the distance with chain over canon I set flag on line, on West side of canon, thence from point of intersection of canon I formed the right angle, triangle A B C, measured angles A and B A=90 B=57 10, hence the angle C must equal 32° 51′ and the measured side AB=10 chs. Thence we have the formula.

CHAINS



Sin. 36° 50′ =		9.734157
Sin. 57 chs. 10′ =		9.924409
Log. 10.00 chs. =		1.000000
15.50 over canon		1.190252

57.50 Leave canon, bears S. S. E.

68.20 Earthen mound situated on a high level plateau established for the 103° Meridian of West Longitude from Greenwich on the 37th Parallel of North Latitude, in the Survey of the Southern boundary of Kansas in 1857. Mound was found partially destroyed, and apparently had been eight feet in diameter and five feet high. Found near mound a stone marked with a brush in black -NM- -COL- IND TER- 37NL- on the four sides respectfully.

80.00 Offset from tangent to Parallel to 2nd mile corner. Marked stone 10x4x3 -2M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 25x16x8 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -2M- respectively.
No natural objects near.
Surface nearly level.
Soil 3rd rate.
July 20th. Measuring chain compared with standard and found correct.

——West on 3rd Mile——

Variation 12° 57′ East.

6.00 Canon 70 feet deep, bears SW.

11.50 Leave canon, bears SW.

65.00 Canon 100 feet deep, bears SE.

77.00 Leave canon, bears E. S. E.

80.00 Offset from tangent to Parallel to 3d mile corner. Marked stone 10x6x4 -3M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 22x12x10 projecting 8 in. above mound, marked on the North, South, West and East side -C- -NM- 1868- -3M- respectively.
No natural objects near.

CHAINS

Surface broken.
Soil 3d rate.

——West on 4th Mile——

Variation 12° 50′ East.

13.00 Top of Bluff, bears SE

At this point the magnetic variation is 18° East and at a point 4 chs. West, 10° East

35.00 Enter head of canon, 75 feet wide, bears S S W.

38.00 Leave canon, bears S S W.

Variation 8° East.

47.00 Enters canon, bears South.

55.00 Leave canon, 50 feet deep, bears South.

70.00 Offset from tangent to Parallel to 4th mile corner.

Marked stone 8x6x4 -4M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x16x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -4M- respectively.

From which point a Hay Stack Peak, bears S 72½ E.

Hay Stack Peak, bears S 64½ W.

Round mound bears S 41 W.

Rabbit Ears mound, bears S 12¼ W.

Large Hill, bears N 71 W.

Prominent point of ridge bears N 42¾ W.

North of this Point is a high plateau.

Surface nearly level, except canons.

Soil 2nd rate.

——West on 5th Mile——

Variation 12° 50′ East.

80.00 Offset from tangent to Parallel to 5th mile corner.

Marked stone 8x4x4 -5M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in deep. Set volcanic stone 20x16x10, projecting 6 in. above mound marked on the North, South, West and East sides -C- -NM- -1868- -5M- respectively.

No natural objects near.

Soil 3rd rate.

Surface gently rolling, high prairie.

CHAINS

——West on 6th Mile——

Variation 10° to 15° East.

80.00 Offset from tangent to Parallel to 6th mile corner. Marked stone 6x6x3 -6M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x12x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -6M- respectively.

No natural objects near.

Surface gently rolling.

Soil 2nd rate.

July 21st. Measuring chain compared with standard and found correct.

——West on 7th Mile——

Variation 10° to 15° East.

51.00 Descend into valley of the Cimaron 800 feet below the level of the high prairie and about 2½ miles wide.

The bluffs are composed mainly of detached rock with four distinct formations.

80.00 Offset from tangent to Parallel to 7th mile corner, situated in canon, 700 feet below high Prairie. Marked stone 12x6x3 -7M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound 2 feet square and 18 in. deep. Set sand stone 28x12x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -7M- respectively.

No natural objects near.

Surface prairie.

Soil 3rd rate.

——West on 8th Mile——

Variation 13° East.

10.00 Enter Cimagon valley, bears South.

80.00 Offset from tangent to Parallel to 8th mile corner. Marked stone 12x8x4 -8M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Sand stone 36x12x6 projecting 8 in. above mound marked on the North, South, West and East sides -C- -NM- -1868- -8M- respectively.

CHAINS

From which point, a Pyramid Mound 600 feet high bears N 77 W
Pyramid Mound bears S 10 W, 2 miles dist.
Mound, bears S 30 E, 3 miles dist.
Surface prairie.
Soil 3rd rate.

West on 9th mile.
Variation 13° East.
45.00 Pyramid mound, bears N 800 lks. dist.
80.00 Offset from tangent to Parallel to 9th mile corner.
Marked stone 8x6x4 -9M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound 2 feet square and 18 in. deep. Set sand stone 20x18x18 projecting 6 in. above mound, marked on the North, South, West and East sides -C- -XM- -1868- -9M- respectively. From which point a sand stone boulder bears N 60 E, 1.67 lks. dist.
Conical mound bears N 45 E, 10 chs. dist.
Pyramid mound, bears S 23 E.
Pyramid mound, bears S 10 E. 200 chs. dist.
Surface prairie.
Soil 3rd rate.
July 22nd. Measuring chain compared with standard and found correct.

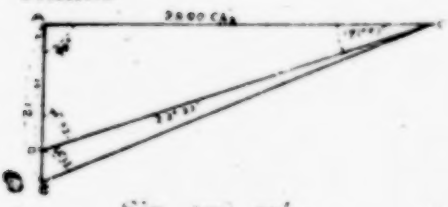
——West on 10th Mile——

Variation 13° East.
80.00 Offset from tangent to Parallel to 10th mile corner.
Marked stone 7x6x3 -10M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 40x12x8 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -XM- -1868- -10M- respectively.
No natural objects near.
Surface level prairie.
Soil 2nd rate.

——West on 11th Mile——

Variation 12° 50′ East.
5.00 Foot of bluff, bears N N W. In order to measure the distance on line, with chain, to top of perpendicular bluff, or spur, I find the right angle triangle

CHAINS



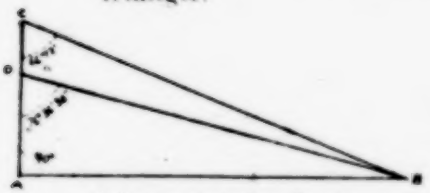
Sin. 23° 33′	= 9.601517
Sin. 66° 27′	= 9.962233
chs.	
Log. 12.20	= 1.086360
27.99.1 chs.	1.447023

Sin. 19° 30′ =	9.526093
Sin. 70° 21′ =	9.973942
chs.	
Log. 10.00 =	1.000000
28. chs.	1.447249

Therefore the mean is

chs.	lks.
27.	99.8

28.00 To top of perpendicular cliff or spur, bears SE. From flag on line, in vally, on West side of ridge, in order to get the distance to flag on ridge, I found the right angle triangle.



Sin. 23° 48′	= 9.605802
Sin. 66° 12′	= 9.961402
Log. 15 chs.	= 1.176000
34.01 chs.	1.531601

Measured Angles A=90, C=66 12′ 00″, D =73 36′ 30″

Therefore the angles A B C = 23.48′ 00″, A B D = 16.23.30 and measured sides A C=15 chs. A D= 10 chs.

Sin. 16° 23′ 30″ =	9.450560
Sin. 73° 36′ 30″ =	9.981979
Log. 10 chs. =	1.000000
34.99 chs.	1.531419

Mean 34 chs

Therefore the distance is 34 chs. This point is 9.50 chs. west of point of line entering valley.

52.50 Enter valley, bears S S E.

80.00 Offset from tangent to Parallel, to 11th mile corner. Marked stone 8x6x4 -11M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -11M- respectively. No natural objects near.

Surface a high ridge (about 600 feet above valley) running to a peak.

In valley nearly level.

CHAINS

Soil 2nd rate.

——West on 12th Mile——

Variation 12° 30' East.

80.00 Offset from tangent to Parallel to 12th mile corner, on flat sand stone, marked -12M- Built conical mound of stone, 4 feet high, over same. Dug pits to lbs. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x9x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -XM- -1868- -12M- respectively.

From which point a

Saddle mound bears N 45° W 30 chs. dist.

Pyramid mound bears N 65° E 30 chs. dist.

Point of Bluff bears S 12° W 60 chs. dist.

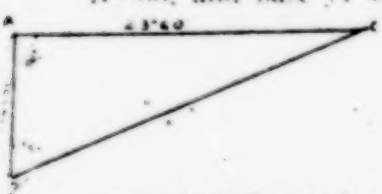
Surface nearly level valley.

Soil 2nd rate.

——West on 13th Mile——

Variation 12° 30' East.

62.30 It being impossible to measure with chain on line, I found the right angle triangle A B C measured angles A=90, B=66, and base A B=10 chs.



Sin. 23° 51'	= 9.606751
Sin 66° 09'	= 9.961235
Log. 10 chs.	= 1.000000
22.60 chs.	1.354484

64.00 Foot of bluff, 300 feet high.

80.00 Place for 13th mile corner, on side of bluff and impossible to establish corner.

Surface except bluff, rolling prairie.

Soil 2nd rate.

July 23rd. Measuring chain compared with standard and found correct.

——West on 14th Mile——

Variation 12° 30' East.

1.82 Top of bluff. Built witness mound of cobble stones, 4 feet high. Set sand stone 20x16x8 marked on the North, South, and West sides -C- -XM- -1868- respectively.

34.76 Top of sand stone bluff, bears S S E.

62.83 Enter valley, bears S S E.

80.00 Offset from tangent to Parallel to 14th mile corner.

CHAINS

Marked stone 8x6x3 -14M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 22x13x13, projecting 8 in. above mound, marked on the North, South, East and West sides -C- -NM- -1868- -14M- respectively. No natural objects near.
Surface, except bluff, gently rolling, prairie.
Soil 2nd rate.

——West on 15th Mile——

Variation 12° 30' East.

20.00 Leave valley, bears SE.

80.00 Place for 15th mile corner on side of bluff. Impossible to establish same.
Surface cut up by deep canons.
Soil 3rd rate.

——West on 16th Mile——

Variation 13° East.

60.00 Leave canon, bears E S E.

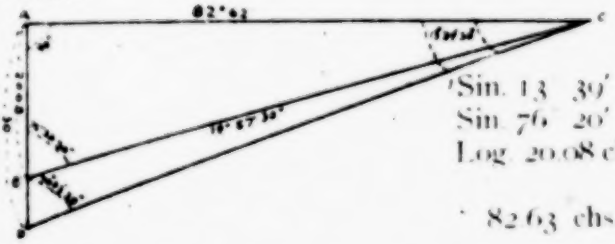
80.00 Offset tangent to Parallel to 16th mile corner.
Marked stone 8x5x3 -16M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -16M- respectively.
From which point a.
Scrub cedar tree, bears N 85W, 66 lks. dist.
Three pyramid mounds, centre one, bears N 20½W.
Saddle mound, bears S 67½ W.
Conical mound, bears S 56 W.
Surface broken, except last 20 chs.
Soil 3rd rate.

——West on 17th Mile——

Variation 13° East.

8.50 To top of bluff. It being impossible to measure with chain on line, I formed the right angle triangle A B C and A D C, measured angles A=90 B=76° 20' 30" D=70° 02' 30" and sides A B=20.08 chs. side A D=30 chs.

CHAINS



Sin. 13 30' 30"	=	9.373154
Sin. 76 20' 30"	=	9.987542
Log 20.08 chs	=	1.302704
82.63 chs.	=	1.917152

Sin. 19 57' 30"	=	9.533183
Sin. 70 02' 30"	=	9.973101
Log. 30 chs.	=	1.477121
82.61 chs.		1.917039

Mean 82.62 chs. to flag

36.00 Enter valley, bears SE.

60.00 Leave valley, bears SE and ascend bluff.

80.00 Place for 17th mile corner on side of bluff and impossible to establish corner.
Surface broken.
Soil 3rd rate.
July 24th. Measuring chain compared with standard and found correct.

——West on 18th Mile——

Variation 13° East.

10.50 Top of bluff. Built witness mound of stone 4 feet high, marked on the North, South and West sides -C- -XM- -1868- respectfully, and enter scattering pinon. Pine timber bears N N W.

40.00 Leave scattering timber and enter high prairie, bears North.

80.00 Offset from tangent to Parallel to 18th mile corner near edge of bluff. Marked stone 8x4x3, -18M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4' feet high, over same. Dug pits 10 lks. East and West from base of mound 10 in. deep—on account of flat stone deeper pits could not be dug. Set sand stone 36x18x4, projecting 8 in. above mound marked on the North, South, West and East sides -C- -XM- -1868- -18M- respectfully.
No natural objects near.
Surface rolling, mostly high prairie.
Soil 3rd. rate.

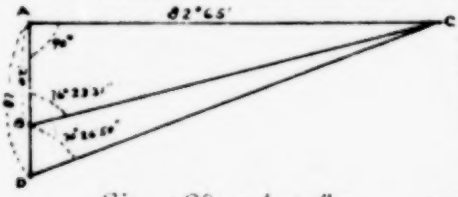
——West on 19th Mile——

Variation 13° 05' East.

1.00 Top of bluff, bears S S E. It being impossible to measure with chain on line I formed the right angle triangle A B C

CHAINS

A D C. Measured angles A=90 B=76.23.31 D =70.26.50. sides A B=20 chs. and A D=28 chs.



Sin. 13° 36′ 30″	= 9.371591	
Sin. 76° 23′ 30″	= 9.987634	
Log. 20 chs.	= 1.301030	
82.63 chs.	1.917073	

Sin. 18° 42′ 40″ =	9.506230	
Sin. 71° 17′ 20″ =	9.976418	Mean 82.64½ chs.
Log. 28 chs. =	1.447158	
82.67 chs.	1.917346	

Measured back from flag, East 355 lks.

80.00 Offset from tangent to Parallel to 19th mile corner on side hill. Marked sand stone 10x6x3 -19M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 ins. deep. Set sand stone 26x11x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -19M- respectfully.
No natural objects near.
Surface nearly all bluff.
Soil 3rd rate

——West on 20th Mile——

Variation 7° to 18° East.

2.65 To top of bluff, bears SE.

80.00 Offset from tangent to Parallel to 20th mile corner, on side of hill.
Marked sand stone 6x5x4 -20M- and deposited it 3½ feet in earth. Built conical mound of cobble stone, over same. 4 feet high. Impossible to dig pits on account of stone. Set sand stone 18x10x6 projecting 6 in. above mound, marked on the North, South, East and West sides -C- -NM- -20M- -1868 respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

——West on 21st Mile——

Variation 8° to 18° East.

19.10 A sand stone boulder, 6 feet above ground, 5 feet high, and

CHAINS

6 feet diameter.

80.00 Offset from tangent to Parallel, to 21st mile corner, on rock, marked -21M-. Built conical mound of stone, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x7x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -21M- respectively.

No natural objects near.

Surface broken prairie.

Soil 3rd rate.

July 25th. Measuring chain compared with standard, and found correct.

——West on 22nd Mile——

Variation 10° to 13° East.

7.00 Enter scattering scrub. Cedar timber on hills -bears South.

79.00 Canon, bears south.

80.00 Offset from tangent to Parallel, to 22nd mile corner. Marked sand stone 8x6x4; -22M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x8, projecting 8 in. above mound. Marked on the North, South, West and East sides -C- -NM- -1868- -22M- respectively.

No natural objects near.

Surface broken.

Soil 3rd rate.

— West on 23rd Mile——

Variation 10° to East.

70.00 Enter valley of the Cimaron, bears E S E. Valley is hilly and stony, except near creek.

80.00 Offset from tangent to Parallel to 23rd mile corner. Marked sand stone 10x6x4 -23M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same, Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep, marked on the North, South, West and East sides -C- -NM- -1868- -23M- respectively.

No natural objects near.

Surface broken prairie.

Soil 2nd rate.

CHAINS

——West on 24th Mile——

Variation 13° East.

80.00 Offset from tangent to Parallel to 24th mile corner.
Marked stone 12x6x4 and deposited it, 3½ feet in ground. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -24M- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

——West on 25th Mile——

Variation 13° East.

32.00 Bed of creek—dry on line—banks 5 feet high, course South and West.

35.00 Leave bed of creek, course South. Sandy bottom, and in places stony. Water just South of line.

80.00 Offset from tangent to Parallel to 25th mile corner.
Marked sand stone 8x6x3 -25M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 38x10x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -25M- respectively.
No natural objects near.
Surface rolling, covered with stone.
Soil 2nd.
July 26th. Measuring chain compared with standard, and found correct.

——West on 26th Mile——

Variation 11° to 15° East.

56.00 Leave Cimaron valley, bears S S W. and enter hills.

80.00 Offset from tangent to Parallel to 26th mile corner in small ravine.
Marked stone 8x6x3 -26M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x12x4 projecting 6 in. above mound. Marked on the North, South, West and East sides -C- -NM- -1868- -26M- respectively.

CHAINS

No natural objects near.
Surface in valley, nearly level, balance broken and stony.
Soil 3rd rate.

——West on 27th Mile——

Variation 11½° to 14½° East.

22.00 Canon, 60 feet deep, 300 lks. wide, bears SE.

72.00 Foot of perpendicular bluff, 75 feet high, bears North and South.

77.25 Wall of stone 5 chs. long, and about 15 feet high. Impregnated about 15% with magnetic iron bears E S E and W N W.

80.00 Offset from tangent to Parallel, to 27th mile corner. Marked stone 10x6x4 -27M- and deposited it, 3½ feet in earth. Built conical mound of earth and stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x10x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -27M- respectively.

No natural objects near.
Surface broken, covered with various kinds of thick brush.
Soil 3rd rate.
July 27th. Measuring chain compared with standard and found correct.

——West on 28th Mile——

Variation 13° East.

80.00 Offset from tangent to Parallel to 28th mile corner. Marked sand stone 10x6x3 -X and deposited it 3½ feet in earth. Built conical mound of cobble stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x10x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -28M- respectively.

No natural objects near.
Surface broken prairie, covered with stone and cactus.
Soil 3rd rate.

——West on 29th Mile——

Variation 13° East.

13.40 Canon, 300 feet deep, bears N N W.

33.76 Over same, bears N N W.

CHAINS

61.00 Descend into canon, 400 feet deep, bears NW and SW, and enter scattering scrub Pine and Cedar timber. Sides of canon and bluff covered with a promiscuous growth of scrub oak and various kinds of brush.

80.00 Offset from tangent to Parallel to 29th mile corner.
Deposited sand stone 10x8x4, 6 in. in earth, marked x, impossible to dig deeper. Built conical mound of sand stone, 4 feet high, over same. Impossible to dig pits, on account of stone. Set sand stone, 20x10x5 projecting 8 in above mound, marked on the North, South, West and East sides -C- -NM- -1868- -29M- respectively.
No natural objects near.
Surface broken and stony, covered with Oak, sage and other brush.
Soil 3rd rate.

——West on 30th Mile——

Variation 13° 10' East

0.72 Dry bed of Creek, 15 lks. Wide, stony bottom, course N N W.

15.50 Dry bed of creek, 15 lks. wide, stony bottom, course E N E.

35.00 Bend in dry bed of creek, 15 lks wide, filled with large sand stone boulders, course E N E and E S E.

41.30 Foot of perpendicular bluff, 50 feet high, bears North and South.

80.00 Offset from tangent to Parallel to 30th mile corner.
Marked sand stone 8x6x4 -30M-, and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 42x7x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -30M- respectively.
No natural objects near.
Surface 1st 50 chs. very broken and stony, covered with Oak and sage brush, balance gently rolling prairie.
Soil 3rd rate.
July 28th. Measuring chain compared with standard and found correct.

——West on 31st Mile——

Variation 13° 11' East.

80.00 Offset from tangent to Parallel, to 31st mile corner.

CHAINS

Marked sand stone 10x6x4 -31M-, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x12x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -31M- respectively.

No natural objects near.

Surface rolling prairie.

Soil 3rd rate.

—West on 32nd Mile—

Variation 13° East.

10.00 Enter brush and scattering Pine timber bears SE.

27.00 Canon, bears S S W.

36.80 Over same, 300 feet deep, bears S S W.

51.30 Large cedar tree, about 6 feet at base, and 15 feet high.

80.00 Offset from tangent to Parallel 7.78 lks. to 32nd mile corner.

Marked stone, 8x6x3 -32M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Impossible to dig pit on account of stone. Set sand stone 26x8x4 projecting 8 in. above mound marked on the North, South, West and East sides -C- -NM- -1868- -32M- respectively.

No natural objects near.

Surface covered with stone.

Soil 3rd rate.

Astronomical monument No. 1 is 12.50 lks. East of said corner, which is represented by a sand stone 75x14x11, set 3 feet in earth. Built mound of stone, 5 feet at base and 32 in. dia. Dug pits 6 feet from base of mound, on the North, South, West and East sides, 2 feet square and 18 in. deep. Monument marked on the North, South, West and East sides "Colorado" "New Mexico" "1868" "37NL"

No natural objects near.

July 29th. Measuring chain compared with standard and found correct.

Observations made on Polaris Aug. 2nd, 1868, P. M. and Aug. 3rd, 1868, A. M. Chronometer fast, on mean Solar

	hr	′	″
time, at 12 M—Aug. 2nd	5.	48.	59. 44

CHAINS

		h ' "
Aug. 2nd, P. M.	Polaris Chronometer time	10. 30. 24
Aug. 3rd, A. M.	do do do	9. 58. 35
	Chronometer interval	11. 28. 11
	Correction for rate	14.7
		11. 28. 25.7
	Reduction to sidereal time	1. 53.8
	Sidereal interval	11. 30. 19.5
		—12 .
	Sidereal time, less 12h	29. 45.5

Rate of chronometer 28.34 per day.

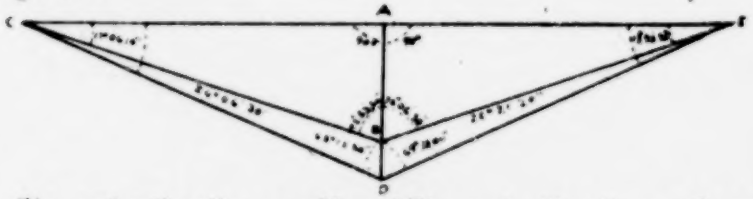
A	8.90' .25" = 13353.75	Log.	4.1256033
—	Cot. 88 36' .08" =		8.3887820
2	Sec. 37		0.0976514
	409.28.		2.6120367

Error of asimuth 6.49" .28" East.

——West on 33d Mile——

Variation 13° 20' East.

1.50 Top of bluff, bears N N W. It being impossible to measure with chain the sides of the bluff, from its top, nearly directly West of 33d mile corner, I set one flag in valley, and one on high ridge, West of valley, and from flag in valley, I formed the right angle triangle, with same perpendicular ABC, ADC, ABE and ADE. Measured the Angles A=90 B=72.53' .50" D= 65.13' .30" B=76.06' .30" D=69.38 .40. Measured sides AB=20 chs. AD= 30 chs.



Sin. 17°.06'.10"	= 9.468475	Sin. 24°.46'.30"	= 9.622272
Sin. 72°.53'.50"	= 9.980357	Sin. 65°.13'.30"	= 9.958067
Log. 20.chs.	= 1.301030	Log. 30 chs.	= 1.477121
65.00	1.812906	65.00	1.812916

CHAINS

Sin. 13 .53'.30"	= 9.380368	Sin. 20 .21'.20"	= 9.541386
Sin. 76° .06'.30"	= 9.987108	Sin. 69° .38'.40"	= 9.971095
Log. 20 chs.	= 1.301030	Log. 30 chs.	= 1.477121
80.88 chs.	1.907870	80.86 chs.	1.907730

Mean 80.87 chs. to flag on West of bluff.

47.50 Foot of bluff, bears S S W. and enters valley which is Prairie land, covered with grass.

73.00 Dry bed of creek, 30 lks. wide, 8 feet deep, stony bottom, course S S E.

78.00 Leave valley, bears S S E, and ascend hill.

80.00 Offset from tangent to Parallel, to 33d mile corner, on a large flat rock, marked with a +. Built a conical mound of stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x10x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -XM- -1868- -33M- respectively.

From which point a
Sand stone boulder, 10x6x7 feet bears North 7 lks.
Surface in valley level, balance broken.
Soil 1st rate.

——West on 34th Mile——

Variation 13° 25' East.

65.80 Top of high Plateau, bears South.

73.37 Top of high Plateau, bears South.

80.00 Offset from tangent to Parallel to 34th mile corner, on side hill. Marked stone 8x6x4 -34M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Impossible to dig pits on account of stone. Set volcanic stone 30x16x13, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -XM- -1868- -34M- respectfully.

No natural objects near.
Surface broken.
Soil 3rd rate.

——West on 35th Mile——

Variation 13° 25' East.

00.00 Level Plateau, bears North and South.

80.00 Offset from tangent to Parallel, to 35th mile corner. Marked stone 10x6x4 -35M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over

CHAINS

same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x12x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -35M- respectively.

From which point
Spanish Peak, bears N 69¼ W.
Spanish Peak, bears N 67½ W.
Mound, bears N 50½ W.
Point of bluff, bears N 19½ W.
Point of bluff, bears N 3 E.
Hay stack mound, bears N 52½ E.
Hill, bears S 29 W.
Mound, bears S 50½ W.
Mound, bears S 57 W.
Mound, bears S 58¼ W.
Hill, bears S 62½ W.
Surface level Prairie.
Soil 2nd rate.

Aug. 3d. Measuring chain compared with standard and found correct.

——West on 36th Mile——

Variation 13° 27′ East.

80.00 Offset from tangent to Parallel, to 36th mile corner. Marked stone 8x6x3 -36M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -36M- respectively. No natural objects near.

——West on 37th Mile——

Variation 13° 35′ East.

50.00 Enter scattering pinion Pine timber, bears North.
55.00 Leave same, bears SE.
65.00 Top of perpendicular bluff, 5 feet high, bears S S W.
79.50 Enter valley, bears S S W.
80.00 Offset from tangent to Parallel, to 37th mile corner. Marked stone 4x3x3 -37M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x

CHAINS

12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -37M- respectively.
No natural objects near.
Surface broken and in places covered with scrub pinion.
Pine timber.
Soil 3rd rate.

——West on 38th Mile——

Variation 13° 30′ East.

57.00 Dry bed of creek, 10 lks. wide, stony bottom, course E. S. E.

80.00 Offset from tangent to Parallel to 38th mile corner, situated about 250 lks. South of head of dry creek. Marked stone 10x6x3 -38M- and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28x16x10, projecting 8 in. above mound, marked on the North, South, West and East sides, -C- -NM- -1868- -38M- respectively.
No natural objects near.
Surface broken and stony.
Soil 3rd rate.

——West on 39th Mile——

Variation 13° 30′ East.

64.20 Foot of perpendicular cliff, 125 feet high, bears E. S. E.

69.50 Enter ravine, 50 lks. wide, bears North.

79.00 Enter scrub Pine and Cedar timber, bears North.

80.00 Offset from tangent to Parallel, to 39th mile corner. Marked stone 10x6x4 -39M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 27x12x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -39M- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

CHAINS

——West on 40th Mile——

Variation 13° 27' East.

5.00 Enter canon, bears N N E.

12.00 Leave canon, bears N N E.

50.00 Leave scattering scrub Pine and Cedar timber and top of perpendicular cliff, 40 feet high, bears S S W.

80.00 Offset from tangent to Parallel, to 40th mile corner. Marked stone 6x5x4 -40M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 32x16x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -40M- respectively. No natural objects near. Surface broken. Soil 3rd rate.

——West on 41st Mile——

Variation 13° 30' East.

63.00 Top of bluff, bears E N E.

80.00 Offset from tangent to Parallel, to 41st mile corner. Marked stone 8x6x3 -41M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -41M- respectively. From which point

A pinion Pine tree, bears N 80 W. 18 lks. dist.

No other tree near.

Surface broken.

Soil 3d rate.

Aug. 4th. Measuring chain compared with standard and found correct.

——West on 42nd Mile——

Variation 13° 30' East.

0.40 Enter scrub pine timber, bears North.

10.00 Leave same, and enter brush.

68.00 Top of bluff, and enter canon, bears E N E.

80.00 Offset from tangent to Parallel to 42nd mile corner. Marked stone 6x5x4 and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high over same. Dug pits 10 lks. East and West from base of mound.

CHAINS

2 feet square, and 18 in. deep. Set sandstone 30x18x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -42M- respectively. From which point

A large sand stone boulder, bears South, 10 lks. dist. with a scrub cedar tree just West of stone.

Surface broken.

Soil 3rd rate.

——West on 43rd Mile——

Variation 13° 25′ East.

15.00 Leave cañon, bears E N E.

40.00 Enter canon, bears SE.

50.50 Leave canon, bears SE.

80.00 Offset from tangent to Parallel, to 43d mile corner. Marked stone 10x6x3 -43M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x8x3, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -43M- respectively. No natural objects near.

Surface broken.

Soil 3rd rate.

——West on 44th Mile——

Variation 13° 20′ East.

30.00 Ascend hill, bears N N W.

58.00 Enter canon, bears N N E.

61.00 Leave canon bears N N E.

80.00 Offset from tangent to Parallel, to 44th mile corner, on side hill. Marked stone 8x6x4 -44M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x7x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -44M- respectively.

No natural objects near.

Surface broken.

Soil 3rd rate.

CHAINS

——West on 45th Mile——

Variation 13° 20' East.

80.00 Offset from tangent to Parallel to 45th mile corner.
Marked stone 8x6x4 -45M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x16x11, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -45M- respectively.
No natural objects near.
Surface hilly and in place covered with volcanic boulders.
Soil 3d rate.

——West on 46th Mile——

Variation 13° 20' East.

10.00 Enter valley, bears South.

26.20 Wagon road, bears S S E.

43.00 Leave valley, bears SW., and ascend hill, foot of Raton mountains.

80.00 Offset from tangent to Parallel to 46th mile corner.
Marked stone 10x6x4 -46M- and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 40x20x12, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -46M- respectively.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 47th Mile——

Variation 13° 20' East.

33.00 To perpendicular cliff, about 60 feet high, bears E N E.
Side of cliff covered with volcanic stone.

80.00 Offset from tangent to Parallel to 47th mile corner.
Marked stone 8x6x4 -47M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x16x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -47M- respectively.
No natural objects near.

CHAINS

Surface 1st 35chs broken, covered with volcanic stone, balance level.
Soil 2nd rate.
Aug. 5th. Measuring chain compared with standard and found correct.

——West on 48th Mile——

Variation 11° to 15° East.

50.00 Top of bluff, 800 feet high, above the level of the country North, and for 200 feet, nearly perpendicular.
I offset North 3 chs. in order to measure the line, thence West 20 chs. offset back to line.

80.00 Offset from tangent to Parallel to 48th mile corner.
Marked stone 10x8x3 -48M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x12x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -48M- respectively. No natural objects near, surface of upland, level, covered with a fine growth of grass.
Soil 2nd rate.

——West on 49th Mile——

Variation 10° to 15° East.

48.00 Canon, bears N N E. It being impracticable to measure with chain on line, on account of ridge, thick brush and cliffs, I offset North 50 chs. and measure West 112 chs. offset to south line and set 50th mile corner.

80.00 Place for 49th mile corner, on side of cliff, impossible to establish corner.
Surface mountainous, covered with stone and various kinds of brush.

——West on 50th Mile——

Variation 11° to 18° East.

80.00 Offset from tangent to Parallel, to 50th mile corner, near top of bluff. Marked stone 12x10x4 -50M- and deposited it, 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Set volcanic stone 26x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -50M-.
No natural objects near.

CHAINS

Surface mountainous and stony, covered with Oak and various kinds of brush.
Soil 3d.

——West on 51st Mile——

Variation 11° to 15° East.

80.00 Offset from tangent to Parallel, to 51st mile corner on side of hill, near foot. Marked stone 10x6x4, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x10x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -51M- respectively. No natural objects near.
Surface broken, covered with Oak and various other kinds of brush.
Soil 3d rate.

——West on 52nd Mile——

Variation 11° to 15° East.

63.00 Enter low scrub pinon pine timber, bears North and South.

80.00 Offset from tangent to Parallel to 52nd mile corner, in scrub pinion Pine timber. Marked stone 10x6x4, -52M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -52M- respectively. No natural objects near.
Surface broken, covered with Oak and other kinds of brush and in places scattering pinion Pine timber.
Soil 3d rate.

——West on 53d Mile——

Variation 12° to 14° East.

26.00 Leave scrubPine and enter brush Prairie bears North and South.

26.50 Dry bed of Creek, 8 lks. wide, stony bottom, course N N W.

80.00 Offset from tangent to Parallel, to 53d mile corner.
Marked stone 5x4x3 -53M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28x12x10, projecting 8 in. above mound, marked on the North, South,

CHAINS

West and East sides -C- -NM- -1868- -53M- respectively
No natural objects near.
Surface broken, nearly covered with various kinds of brush
Soil 3d rate.
Aug. 6th. Measuring chain compared with standard and found correct.

——West on 54th Mile——

Variation 12° to 14° East.

27.00 Enter scattering scrub pinion Pine timber, bears South

80.00 Offset from tangent to Parallel, to 54th mile corner. Marked stone 8x6x4 -54M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set pinion Pine post, 8 feet long, and 6 in. square, leveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides, -C- -NM- -1868- -54M- respectively.
No natural objects near.
Surface broken, nearly covered with scattering pinion Pine timber.
Soil 3d.

——West on 55th Mile——

Variation 12° to 14° E.

63.00 Leave scattering pinion Pine timber and scrub Oak brush, bears North and South.

75.30 Creek, 6 lks. wide, clear water, and gentle current, course N N W.

80.00 Offset from tangent to Parallel to 55th mile corner. Deposited stone 8x4x4 marked -55M- 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x12x10, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -55M- respectively.
No natural objects near.
Surface broken.
Soil 2nd rate.

——West on 56th Mile——

Variation 10° to 16° East.

37.00 Dry bed of Creek, 10 lks. wide, stony bottom, course N N W.

CHAINS

80.00 Offset from tangent to Parallel to 56th mile corner. Marked stone 8x8x6 -56M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -56M- respectively.
No natural objects near.
Surface rolling.
Soil 2nd rate.

——West on 57th Mile——

Variation 10½° to 15° East.

40.00 A conical mound, covered with pinion Pine timber, bears S 47 W.
Saddle mound, bears N 10 E. 8 chs. dist.

80.00 Offset from tangent to Parallel, to 57th mile corner. Marked stone 10x6x5 -57M- and deposited it, 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -57M- respectively.
No natural objects near.
Surface rolling.
Soil 2nd rate.

——West on 58th Mile——

Variation 11° to 15° East.

76.90 Top of perpendicular volcanic rock bluff 100 feet above bed of creek=Cabin bears N 25 W.

78.70 Creek, 15 lks. wide, clear water, rapid current, gravelly bottom, course North.

80.00 Offset from tangent to Parallel, to 58th mile corner. Marked stone 10x6x4, -58M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x10x12, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -58M- respectively.
From which point
Cabin bears N 8 W.
Wall of rock, 30 feet high, bears N 55 W. about 4 chs. dist.

CHAINS

Surface broken Prairie.
Soil 2nd rate.

——West on 59th Mile——

Variation 12° to 15° East.

0.35 A ditch dug for irrigation.

1.00 Trail bears North.

14.00 A natural and most complete wall of volcanic stone, extending in a straight line, for a distance of 4 miles. A great portion of the stones composing it are trapezuin, and some parallelopiped in shape, and from their appearance appear to have been angled, and set by the skilled artisan many centuries ago. They will average in weight about 400 lbs: the wall in height to be 50 feet, and is from 50 to 200 feet above valley. The South side portion of the wall is of various heights, while the North side, is more regular and has a uniform height of about 5 feet. It bears N 87 E, and S 87 W.

40.00 Cabin, bears N 31 E.

80.00 Offset from tangent to Parallel, to 59th mile corner.
Marked stone 8x6x4 -59M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -59M- respectively.
No natural objects near.
Surface broken.
Soil 2nd rate.
Aug. 7th. Measuring chain compared with standard and found correct.

——West on 60th Mile——

Variation 9° to 22° East.

35.00 Cabin, bears N 48 W.

80.00 Offset from tangent to Parallel to 60th mile corner.
Marked stone 10x6x3 -60M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr. and 18 in. deep. Set volcanic stone 20x16x10, projecting 6 in. above mound, marked on the North, South West and East sides -C- -NM- -1868- -60M- respectively.

CHAINS.

No natural objects near.
Surface broken.
Soil 2nd rate.

——West on 61st Mile——

Variation 14° East.

49.00 Ravine and dry bed of creek, 10 lks. wide, 10 lks. South, course North.

79.50 Creek, 15 lks. wide, clear water, rapid current, gravelly bottom, course NE.

80.00 Offset from tangent to Parallel, to 61st mile corner.
Marked stone 6x5x4 -61M- and deposited it, 3½ feet in earth. Built conical mound, of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound. 2 feet square and 18 in. deep. Set volcanic stone 28x8x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -61M- respectively.
No natural objects near.
Surface broken.
Soil 2nd rate.

——West on 62nd Mile——

Variation 13° East.

2.30 Creek, 15 lks. wide, clear water, rapid current, gravelly bottom, course E S E.

3.30 Same creek, 15 lks. wide, clear water, rapid current, stony bottom, about 2 in. deep, course E N E. Scattering Oak, brush on banks.

15.00 Leave valley, bears NE.

80.00 Offset from tangent to Parallel to 62nd mile corner, on top of hill.
Marked stone 10x6x4 -62M- and deposited it, 3½ feet in earth. Built conical mound of stone, 4 feet high, over Same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x16x10, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -62M- respectively.
No natural objects near.
Surface hilly.
Soil 2nd rate.

——West on 63d Mile——

Variation 12° to 14° East.

20.00 Enter valley, bears N N W.

CHAINS

33.30 Dry bed of Creek, 20 lks. wide, stony bottom, banks 6 feet high, course S S E.

42.00 Leave valley, bears N N E.

80.00 Offset from tangent to Parallel 7. 30. 1 lks. to 630 mile corner, on side hill.

Marked stone 10x6x3 -63M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 22x11x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -63M- respectively.

No natural objects near. Surface broken. Soil 3d rate.

Aug. 8th. Measuring chain compared with standard and found correct.

Astronomical monument is 21.00 chs. East of said corner, and is represented by a charred cedar post, 11 feet long and 12 in. square. Marked volcanic stone 12x12x4 A Sta. No. 2 -37 N L- and deposited it in earth. Set post 4 feet in earth, marked on the North, South, East and West sides "Colorado" "New Mexico" "1868" "37 NL". Built mound of cobble stones, 6 feet base and 4 feet high. Dug pits 6 feet, East, West, North and South, 2 feet square and 18 in. deep, from base of mound.

Observations made on Polaris, lower and upper culmination for Asimuth Aug. 9th P. M. -Aug. 10th A. M.-

Chronometer fast on mean Solar time, Aug. 9th M. 5h 50m 10s, with a loosing rate of 22.5 per day, or mean Solar time.

	h	m	s
Time of lower transit as marked by chronometer, Aug. 9th P. M.—	9	26	50
Time of upper transit, Aug. 10th A. M.	9	24	30
Chronometer interval	11	57	40
Correction for rate			11.2
Mean solar interval	11	57	51.2
Reduction to sidereal time		1	57.9
Sidereal interval	11	59	49.1
—12			
h			
Less than 12			11

CHAINS

Computation for error Asimuth

	Δ 05′ 5 82.5	Log =	1.916454
—	d cot. 88.36.9	=	8.392381
2	Sec. 37	=	0.097651
Error 2″.5			0.406486

Observations at 63d mile corner, 21 chs. West of Astronomical Monument No. 2.

——West on 64th Mile——

Variation 13° 20′ East.

56.50 Canon, 200 lks. wide, bears North.
61.00 Canon, 200 lks. wide, bears N N E.
75.00 Top of bluff, bears North.
80.00 Offset from tangent to Parallel to 64th mile temporary corner.

Surface broken prairie.
Soil 3d rate.

——West on 65th Mile——

Variation 11° to 14° East.

20.00 Dry bed of Creek, high banks, course NW.
48.50 Bend in creek 20 lks. wide, clear water, swift current, stony bottom, banks about 4 feet high, course E S E and E N E.
58.00 Same Creek, 20 lks. wide, course East.
75.00 Bend in same Creek, course East.
80.00 Offset from tangent to Parallel, to 65th mile temporary corner.

Surface very broken.
Soil 3d rate.

——West on 66th Mile——

Variation 12° to 14° East.

5.00 Leave valley, bears South.
24.75 Top of hill.
50.00 Spring branch, 3 lks. wide, course SE.
68.50 Spring branch, 2 lks. wide, course SE.
80.00 Offset from tangent to Parallel, to 66th mile, temporary corner.

Surface mountainous, covered with volcanic stone and thick growth of Oak and black locust and various other kinds of brush and vines.
Soil 3d rate.

CHAINS

Aug 10th Measuring chain compared with standard, and found correct.

——West on 67th Mile——

Variation 11° to 15° East.

80.00 Offset from tangent to Parallel to 67th mile, temporary corner.

Surface broken, covered with stone and heavy growth of Oak, black locust and various kinds of brush.

Soil 3d rate.

——West on 68th Mile——

Variation 11° to 15° East.

75.00 Highest point of ridge, 1000 ft above creek valley.

70.20 Creek, 25 lks. wide, clear water, rapid current and stony bottom, course S S E.

80.00 Place for temporary 68th mile corner, but impossible to establish it.

Surface mountainous, covered with volcanic stone and thick undergrowth of Oak, black locust and various other kinds of brush.

Soil 3rd rate.

——West 7m 60th Mile——

Variation 12° to 14° East.

31.80 Top of perpendicular bluff, 150 feet high bears S S E.

32.00 Built cobble stone witness mound. Set volcanic stone 28x12x10, marked on the North, South and West sides -C- -NM- -1868- respectively.

The surface between the top of ridge, 15 chs. West of the 68th mile corner, being very rough and broken, making it impracticable to measure the distance with chain with accuracy from that point, and in order to test the measurement, I formed the triangle ABC and ADC, measured angles A=90 B=78° 21' 50" D=72° 50', hence we have the formula angle C—Sin 11 AB AC, or

Sin 11° 38' 10" =	9.304697
Sin 78° 21' 50" =	9.990981
Log 20 chs =	1.301030
97 chs 10 lks.	1.687214

CHAINS

Sin. 17° .10'=	9.470046	Mean 97 chs. 11 lks. to flag.
Sin. 72 .50'=	9.980208	
Log. 3 chs.=	1.477121	
97 chs. 12 lks.	1.987283	

There being 49 lks. difference between the computation and measurement of the distance of the line, from A to C, I adopted the computed distance, making the distance to the stone monument 97 chs. 11 lks. Therefore the stone monument is 32 chs. 11 lks. on 69th mile corner.

80.00 Offset from tangent to Parallel to 69th mile temporary corner.

Surface in canon broken, covered with a thick growth of oak, black locust, ash and other kinds of brush.

Soil 2nd rate.

Surface after leaving canon, gently rolling.

Soil 3rd rate.

Aug. 11th. Measuring chain compared with standard, and found correct.

——West on 70th Mile——

Variation 11° to 17° East.

80.00 Offset from tangent to Parallel, to 70th mile, temporary corner.

From which point

A volcanic stone, projecting 36x30x24 in. above surface, is 39 lks. West of temporary corner, marked +.

Surface gently rolling.

Soil 2nd rate.

——West on 71st Mile——

Variation 11° to 17° East.

53.50 Ledge of Granite rock, bears SW and NE.

80.00 Offset from tangent to Parallel, to 71st mile, temporary corner.

Surface rolling.

Soil 2nd rate.

——West on 72nd Mile.——

Variation 11° to 17° East.

4.00 Highest point on Plateau, from which a point of perpendicular stone bluff, bears S 27 W.

Conical mound in valley, bears S 12 W.

Point of bluff, bears S 3½ W.

CHAINS

Large hill, bears S 17½ E.
3 mounds, centre one, highest, bears S 26 E.
Saddle mound, bears S 54 E.
High peak, bears S 56 1/3 E.
High peak, bears S 67¼ E.
North point of high mountain ridge, bears N 64 E.
80.00 Offset from tangent to Parallel to 72nd mile temporary corner.
Surface gently rolling.
Soil 2nd rate.

——West on 73d Mile——

Variation 10° to 16° East.
0.70 Top of perpendicular volcanic ledge, 200 feet high.
80.00 Offset from tangent to Parallel, to 73d mile temporary corner.
Surface very broken.
Soil 3d rate.
Aug. 12th. Measuring chain compared with standard and found correct.

——West on 74th Mile——

Variation 10° to 16° East.
15.00 Creek, 10 lks wide, clear water, rapid current, stony bottom, high banks, course E S E.
80.00 Place for 74th mile corner, on side of ridge.
Impossible to establish temporary corner.
Surface mountainous, covered with a thick growth of Oak and black locust and various kinds of brush and vines, they being so thick and compact as to be almost impossible to penetrate them.
Soil 3d rate.

——West on 75th Mile——

Variation 10° to 16° East.
12.00 Creek, 15 lks. wide, clear water, rapid current, stony bottom, course SW.
60.00 Enter valley, bears E S E.
60.30 Indian trail, bears E S E.
65.00 Creek, 18 lks. wide, clear water, gentle current, sandy bottom, course E S E.
80.00 Place for 75th mile corner, impossible to establish temporary corner.
Surface mountainous, covered with a thick growth of Oak,

CHAINS

Locust and various other kinds of brush and vines.
Soil 3d rate.

West on 76th Mile

Variation 10° to 16° East.

62.05 Top of bluff, 1000 feet high. Built a witness cobble stone mound and set volcanic stone 30x12x10, in same, marked on the North -C- South -NM- West -1868-. It being impracticable to measure with chain, on line with accuracy on account of the mountainous character of the country between the 72nd mile corner, and this point, in order to test the same, I formed the right angle triangle ABC and ADC, the point, A, being the witness corner, and point C the 72nd mile corner. Measured angles A 90° B 75° 07' 40" and angles D 90° 08' 16' 30" Sides AB 80 chs side AC 120 chs.

Sin 14° 38' 20"		9.400305
Sin 75° 07' 40"		9.985202
Log 80 chs.		1.903090
		2.478927
301.22 chs.		
Sin 21° 43' 10"	9.568275	
Sin 68° 16' 50"	9.968019	
Log. 120 chs.	2.079181	Mean 301.22 chs.
301.22 chs.	2.478925	

Therefore, the computed distance 301.22 chs. is 83 lks less than the distance measured with chain, which I think is much more accurate than chain measurement, as great pains was taken to have the angles and bases measured as accurate as possible. Therefore I adopted the computed distance, making the cobble stone mound 75 miles 61 chs and 22 lks.

66.50 Enter canon, 200 feet deep, bears NE.

80.00 Offset from tangent to Parallel, to 76th mile, temporary corner, in canon.

CHAINS

Surface mountainous, covered with Oak and Locust brush.
Soil 3d rate.
Aug 13 Measuring chain compared with standard and found correct.

——West on 77th Mile——

Variation 10° to 16° East.

2.30 Leave canon, bears North.

74.20 Indian trail, bears S S W.

80.00 Offset from tangent to Parallel to 77th mile, temporary corner.
Surface rolling.
Soil 3d rate.

——West on 78th Mile——

Variation 10° to 17° East.

80.00 Offset from tangent to Parallel, to 78th mile, temporary corner.
Surface, a high, gently rolling plateau.
Soil 3d rate.

——West on 79th Mile——

Variation 9° to 19° East.

72.00 Top of bluff, bears North.

80.00 Offset from tangent to Parallel, to 79th mile, temporary corner.
Surface, a gradual descent to the West.
Soil stony.
3d rate.

——West on 80th Mile——

Variation 11° to 15° East.

chs

3.34 Offset to Parallel, said point on parallel is 2.40 lks South of Astronomical monument No 3 Therefore the correction will be 17 27/100 lks per mile.
Aug 14th Measuring chain compared with standard and found correct.

——East on 80th Mile——

Variation.

chs

80.00 Moved temporary corner 3.27.1 North, and set true corner.
Marked stone 5x5x4 and deposited it 3½ feet in earth.

CHAINS

Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x8, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -80M-.

——East on 79th Mile——

Variation.

80.00 Moved temporary corner 3.06.7 lks. North and set true corner.

Marked stone, but impossible to deposit it, on account of stone. Built conical mound of stone 4 feet high over it. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 34x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- NM- -1868- -79M- respectively. No natural objects near.

——East on 78th Mile——

Variation.

80.00 Moved temporary corner 2.86.2 lks. North, and set true corner.

Marked stone 8x6x4 -78M- and deposited it 3½ feet in earth. Built conical mound of earth and volcanic stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 27x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -78M- respectively.

No natural objects near.

——East on 77th Mile——

Variation.

80.00 Moved temporary corner, 2.65.9 lks. North, and set true corner.

Marked stone 8x6x4 -77M- and deposited it, 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x10x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -77M- respectively.

No natural objects near.

CHAINS

——East on 76th Mile——

Variation.

80.00 Moved temporary corner 245.5 lks. North, and set true corner.

Marked stone 11x7x4 -76M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square, and 18 in. deep. Set volcanic stone 20x10x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -76M- respectively.

No natural objects near.

——East on 75th Mile——

Variation.

80.00 Place for 75th mile corner, on side hill, impossible to establish it.

——East on 74th Mile——

Variation.

80.00 Place for 74th mile corner on side of bluff, impossible to establish it.

——East on 73d Mile——

Variation.

80.00 Moved temporary corner 184.2 lks. North and set true corner.

Marked stone 10x6x8 -73M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square leveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -73M- respectively.

No natural objects near.

——East on 72nd Mile——

Variation.

80.00 Moved temporary corner 163.7 lks. North and set true corner.

Marked stone 10x5x4, -72M- and deposited it 3½ feet in earth. Built conical mound of volcanic cobble stones, 4 feet high, over same. Dug pits 10 lks. East and West from

CHAINS

base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x16x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -72M- respectively.
No natural objects near.

——East on 71st Mile——

Variation.

80.00 Moved temporary corner 1.43.4 lks. North and set true corner.
Marked stone 10x6x3 -71M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr. and 18 in. deep. Set sand stone 30x12x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -71M- respectively.
No natural objects near.

——East on 70th Mile——

Variation.

80.00 Moved temporary corner 1.43.4 lks. North and set true corner.
Marked volcanic stone 10x6x4 -70M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks, East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x12x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -70M- respectively.
No natural objects near.

——East on 69th Mile——

Variation.

80.00 Moved temporary corner 1.23.0 lks. North and set true corner.
Marked stone 10x6x4 and -69M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x8x7, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -69M- respectively.
No natural objects near.

CHAINS

——East on 68th Mile——

Variation.

80.00 Place for 68th mile corner, but impossible to establish it.

——East on 67th Mile——

Variation.

80.00 Moved temporary corner 8.21.0 lks. North and set true corner.

Marked stone 10x6x4 -67M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -67M- respectively. No natural objects near.

——East on 66th Mile——

Variation.

80.00 Moved temporary corner 6.17.0 lks. North and set true corner.

Deposited volcanic stone 8x6x3 -66M-, and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 36x14x4 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -66M- respectively.

No natural objects near.

——East on 65th Mile——

Variation.

80.00 Moved temporary corner 4.13.0 lks. North, and set true corner.

Marked stone, 8x6x4 -65M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x16x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -65M- respectively. No natural objects near.

——East on 64th Mile——

Variation.

80.00 Moved temporary corner 2.09.0 lks. North and set true corner.

CHAINS

Marked stone 10x6x3 -64M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet sqr. and 18 in. deep. Set volcanic stone 18x16x10 projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -64M- respectively. No natural objects near.

Observations for Asimuth at Astronomical monument No. 3—On d Ursae Minoris, Dec. 86° .36' .40" RA 18h. 15m. 00.4s and 51 Cephei Dec. 87° .14' .07" -RA 6h. 37m. 35s Aug. 19th. 1868, PM—Chronometer fast, at mean noon on Solar time 5h. 49m. 42s, with a loosing rate of 22s per day.

	h	m	s
Chonometer time of observations of d Ursae Minoris, upper transit	2.	10.	54.
Chronometer time of observation of 51 Cephei	2.	33.	25
Chronometer interval		22.	31
Chronometer rate			0.34
Reduction to Sidereal time			3.7
		22.	35.04
Difference in RA of the two stars		22.	34.7
			.34

$\Delta = 00^s.34 \doteq 5''10$	Log. =	0.707570
— Cos. d 86° 36' 40"	=	8.771681
Cos. d 87° 14' 07"	=	8.683229
Sec, ø 37°	=	0.097651
Cosec. 6.09.13	=	0.969827
Error 0" 19		1.229958

——West on 80th Mile——

Variation 13° 40' East.

51.34 Astronomical Monument No. 3 which is represented by a sand stone 75x20x12 marked on the North, West and East sides "Colorado" "New Mexico" "1868" "37NL". Marked stone 8x6x6 -37NL- 1868, and deposited it under

CHAINS

stone. Built conical mound of stone, 6 feet at base and 3 feet high.

52.00 Santa Fe road and telegraph line, bears North.

80.00 Offset from tangent to Parallel, to 80th mile, temporary corner.

Surface rolling.

Soil 2nd rate.

——West on 81st Mile——

Variation 13° 40° East.

1.00 Road, bears E S E.

4.75 Same road, bears South.

12.10 Enter 2nd rate, white Pine timber, with thick brush, bears SE.

80.00 Offset from tangent to Parallel, to 81st mile, temporary corner.

Surface broken.

Soil 2nd rate.

——West on 82nd Mile——

Variation 13° 40′ East.

2.25 Canon, 70 lks. wide, bears South.

36.75 Canon, 100 lks. wide, bears S S E.

73.00 Cabin, bears N 18 W, about 14 chs. dist.

73.00 Canon, 200 lks. wide, bears S S E.

80.00 Offset from tangent to Parallel, to 82nd mile, temporary corner.

Surface, mountainous, covered with 2nd rate yellow Pine timber, and an undergrowth of Oak, wild and black locust brush.

Soil 3d rate.

——West on 83d Mile——

Variation 13° 42′ East.

37.00 Canon, 5 chs. wide, bears S S E.

80.00 Offset from tangent to Parallel, to 83d mile, temporary corner.

Surface mountainous, covered with 2nd Pine timber

Soil 3d rate.

——West on 84th Mile——

Variation 13° 43′ East.

7.00 Canon, 100 lks. wide, bears N N E.

39.00 Canon, 200 lks. wide, bears N N E.

CHAINS

80.00 Offset from tangent to Parallel to 84th mile temporary corner.

Surface mountainous, covered with 3d rate Pine timber.

Soil 2nd rate.

——West on 85th Mile——

Variation 13° 43′ East.

9.00 Ratoon Peak, bears N 38½ W.

42.00 Canon, bears North.

56.00 Leave canon, bears N N W.

77.00 Canon, 200 lks. wide, bears N N W.

80.00 Offset from tangent to Parallel to 85th mile temporary corner.

Surface broken, covered with 2nd rate Pine timber and an undergrowth of Oak and wild locust brush, etc.

Soil 3d rate.

——West on 86th Mile——

Variation 13° 46′ East.

17.00 Canon, 200 lks. wide, bears N N W.

30.50 Canon, 200 lks. wide, bears N N W.

59.00 Canon, 200 lks. wide, bears W S W.

64.00 Canon, 300 lks. wide, bears N W.

80.00 Offset from tangent to Parallel to 86th mile temporary corner.

Surface mountainous, covered with 2nd rate Pine timber and an undergrowth of black locust brush.

Soil 2nd rate.

Aug. 21st. Measuring chain compared with standard and found correct.

——West on 87th Mile——

Variation 13° 47′ East.

8.00 Canon, 4 chs. wide, bears N N W.

28.50 Canon, 5 chs. wide, bears N N W.

61.50 Canon, 5 chs. wide, bears N W.

80.00 Offset from tangent to Parallel to 87th mile temporary corner.

Surface broken, covered with 2nd rate Pine timber and an undergrowth of Oak and locust brush.

Soil 2nd rate.

——West on 88th Mile——

Variation 13° 50′ East.

25.50 Enter fallen timber, bears North.

CHAINS

40.00 Leave fallen timber and enter brush, bears North.
58.50 Leave brush, bears North.
73.00 Creek, 8 lks. wide, clear water, rapid current, stony bottom, course N N W.
80.00 Offset from tangent to Parallel to 88th mile, temporary corner.
Surface broken, East half covered with 2nd rate Pine timber, balance covered with Oak, Locust, brush and vines.
Soil 3d rate.

——West on 89th Mile——

Variation 13° 50′ East.
15.00 Enter scattering Pine timber, bears N N W.
23.00 Leave 2nd rate Pine timber, bears N N E.
38.50 Canon, 200 lks. wide, bears N N W.
77.00 Canon, 30 lks. wide, bears North.
80.00 Offset from tangent to Parallel, to 89th mile temporary corner.
Surface mountainous, covered with Oak and locust brush.
Soil 3d rate.

——West on 90th Mile——

Variation 13° 50′ East.
11.00 Enter 2nd rate Pine timber, bears S S E.
28.00 Canon, 300 lks. wide, bears NW.
75.00 Canon, 250 lks. wide, bears NW.
80.00 Offset from tangent to Parallel to 90th mile, temporary corner.
Surface broken, covered with 2nd rate Pine and spruce timber, and an undergrowth of Oak and Locust brush.
Soil 3d rate.
Aug. 22nd. Measuring chain compared with standard and found correct.

——West on 91st Mile——

Variation 13° 50′ East.
14.00 Canon, 200 lks. wide, bears NW.
40.00 Canon, 300 lks. wide, bears North.
80.00 Offset from tangent to Parallel to 91st mile temporary corner.
Surface mountainous, covered with 2nd rate Pine timber and a thick growth of Oak and locust brush.
Soil 2nd rate.

CHAINS

——West on 92nd Mile——

Variation 13° 50′ East.

3.00 Canon, 3 chs. wide, bears NW.

49.00 Prairie valley, bears N N W.

51.40 Creek, 10 lks. wide, clear water, rapid current, and stony bottom, course North.

52.50 Leave valley, bears N N W.

69.60 Enter valley, bears N N W.

69.80 Creek, 15 lks. wide, banks 4 feet high, clear water, 4 in deep, swift current, stony bottom, course North.

78.60 Wagon road, from Cimaron or Maxwells mines to Trinidad, Colorado.

80.00 Offset from tangent to Parallel to 92nd mile, temporary corner.

Surface mountainous, covered with Locust Oak and various kinds of brush.

Soil 2nd rate.

Different veins of bituminous coal crops out in this section from side hills, etc.

——West on 93d Mile——

Variation 13° 51′ East.

5.50 Leave valley, bears E N E and SW.

25.00 Canon, 100 lks. wide, bears SW.

40.00 Enter 2nd rate Pine timber, bears North.

80.00 Offset from tangent to Parallel, to 93d mile, temporary corner.

Surface mountainous, covered with 2nd rate Pine and spruce timber, and undergrowth of Oak and Locust brush.

Soil 2nd rate.

——West on 94th Mile——

Variation 13° 52′ East.

30.00 Canon 100 lks. wide, bears SE.

80.00 Offset from tangent to Parallel to 94th mile temporary corner.

Surface mountainous, covered with 2nd rate Pine and spruce timber and an undergowth of Oak and Locust brush.

Soil 2nd rate.

——West on 95th Mile——

Variation 13° 52′ East.

27.50 Canon, 50 lks. wide, bears S S E.

72.50 Canon, 3 chs. wide, bears South.

CHAINS

80.00 Offset from tangent to Parallel to 95th mile, temporary corner.
Surface mountainous, covered with 2nd rate Pine and spruce timber.
Soil 2nd rate.
Aug. 23d. Measuring chain compared with standard and found correct.

——West on 96th Mile——

Variation 13° 53′ East.
14.50 Canon, 4 chs. wide, bears S S E.
80.00 Offset from tangent to Parallel, to 96th mile, temporary corner.
Surface mountainous, covered with 2nd rate Pine and spruce timber and can undergrowth of Oak, Locust and various other kinds of brush.
Soil 2nd rate.

——West on 97th Mile——

Variation 13° 54′ East.
4.00 Canon, 40 lks. wide, bears South.
Note: A bituminous coal bed, 25 lks. South about 4 feet thick.
5.00 Leave timber and thick brush, bears E S E.
24.50 Canon, 300 lks. wide, bears S E.
72.00 Enter 2nd rate Pine timber, bears S S W.
80.00 Offset from tangent to Parallel to 97th mile, temporary corner.
Surface broken, covered with thick growth of Oak, Locust and various other kinds of brush. Last 8 chs. 2nd rate Pine timber.
Soil 3d rate.

——West on 98th Mile——

Variation 13° 54′ East.
16.00 Canon, 2 chs. wide, bears SE.
62.60 Indian trail, bears SW.
73.50 Canon, 75 lks. wide, bears NW.
80.00 Offset from tangent to Parallel to 98th mile temporary corner.
Surface broken, covered with 2nd rate Pine and Spruce timber and an undergrowth of Oak and Locust brush.
Soil 3d rate.

CHAINS

——West on 99th Mile——

Variation 13° 54′ East.

17.50 Ravine, 100 lks. wide, bears N N W.

22.50 Leave 2nd rate timber and enter Oak and Aspen brush, bears NE.

51.00 Canon, 200 lks wide, bears N N E.

70.00 Enter 2nd rate Pine timber, bears SE.

80.00 Offset from tangent to Parallel to 99th mile temporary corner.

Surface mountainous, about 2/3 of the mile has been burnt over, and covered with fallen timber, grown up to Aspen and Oak brush.

Soil 2nd rate.

——West on 100th Mile——

Variation 13° 55′ East.

8.00 Canon, 1 ch. wide, bears North.

30.00 Canon, 2 chs. wide, bears NE.

50.00 Top of mountain, bears SE.

80.00 Offset from tangent to Parallel, to 100th mile, temporary corner.

Surface broken and mountainous, covered with 2nd rate Pine, Fir and Spruce timber, and an undergrowth of Oak, Locust and other kinds of brush.

Soil 3d rate.

Aug. 24th. Measuring chain compared with standard and found correct.

——West on 101st Mile——

Variation 13° 55′ East.

12.00 Canon, 200 lks. wide, bears N N W.

31.00 Canon, 300 lks. wide, bears N N E.

80.00 Offset from tangent to Parallel to 101st mile temporary corner.

Surface mountainous, covered with 2nd rate Pine, Fir and Spruce timber and an undergrowth of Oak and Locust brush.

Soil 3d rate.

——West on 102nd Mile——

Variation 13° 55′ East.

23.75 Canon, 2 chs. wide, 800 feet deep, bears S S W.

80.00 Offset from tangent to Parallel to 102nd mile tem corner.

Surface mountainous, covered with 2nd rate Pine, Spruce timber and an undergrowth of Oak and brush, stony on side of bluffs.

CHAINS

Soil 3d rate

——West on 103d Mile——

Variation 13° 55′ East.

5.00 Enter Aspen timber and brush, bears North.

9.50 Canon, 100 lks. wide, bears North.

36.00 Canon, 150 lks. wide, bears North.

46.00 Canon, bears E N E.

61.00 Leave canon, bears E N E.

73.00 Enter canon, bears E N E.

79.00 Leave canon, bears E N E.

80.00 Offset from tangent to Parallel, to 103d mile, temporary corner.

Surface mountainous, covered with Aspen brush. It was covered with Aspen timbers, but fire, only a shore time since destroyed it, and Aspen brush has grown up in its stead.

Soil 2nd rate.

——West on 104th Mile——

Variation 13° 55′ East.

38.00 Leave side of bluff, bears E N E.

80.00 Offset from tangent to Parallel to 104th mile temporary corner.

Surface, 1st half mountainous, covered with brush, 2nd half a high plateau covered with 2nd rate yellow pitch Pine and fir timber.

Soil 3d rate.

Aug. 25th. Measuring chain compared with standard, and found correct.

——West on 105th Mile——

Variation 13° 55′ East.

10.00 Top of bluff, bears N N W.

20.00 Canon, 200 lks. wide, bears N N W.

35.00 Enter fallen Aspen timber, grown up to thick brush, bears North.

46.50 Enter 2nd rate Pine and Fir timber, bears North.

80.00 Offset from tangent to Parallel, to 105th mile, temporary corner.

Surface mountainous, covered mostly with 2nd rate Pine and Fir timber and an undergrowth of Oak and Aspen brush.

Soil 3d rate.

CHAINS

——West on 106th Mile——

Variation 13° 55′ East.

15.50 Canon, 200 lks. wide, bears N N E.

50.50 Canon, 300 lks. wide, bears SE.

80.00 Offset from tangent to Parallel, to 106th mile, temporary corner.

Surface broken, covered with 2nd rate Pine Fir and Aspen timber.

Soil 2nd rate.

——West on 107th Mile——

Variation 13° 55′ East.

80.00 Offset from tangent to Parallel, to 107th mile, temporary corner.

Surface broken.

Soil 1st rate.

——West on 108th Mile——

Variation 13° 55′ East.

80.00 Offset from tangent to Parallel, to 108th mile, temporary corner.

Surface rolling, covered with 2nd rate Pine and Aspen timber and an undergrowth of Oak brush.

Soil 2nd rate.

——West on 109th Mile——

Variation 13° 55′ East.

80.00 Offset from tangent to Parallel to 109th mile temporary corner.

Surface rolling, covered with 2nd rate pitch Pine and Aspen timber.

Soil 2nd rate.

Aug. 26th. Measuring chain compared with standard, and found correct.

——West on 110th Mile——

Variation 13° 55′ East.

2.50 Canon, bears S S W.

37.00 Prairie Valley covered with grass, bears S SE.

74.00 Leave 2nd rate Pine timber, bears S S W.

77.00 Enter low bottom, bears S S E.

77.00 Creek, 3 lks. wide, low banks, clear water, swift current, sandy bottom, course S S E.

78.50 Leave low bottom, bears S S E.

CHAINS

80.00 Offset from tangent to Parallel, to 110th mile, temporary corner.
Surface broken, covered with 2nd rate Pine and Aspen timber.
Soil 2nd rate.

——West on 111th Mile——

Variation 13° 55′ East.

1.50 Enter 2nd rate Pine timber, bears SE.

80.00 Offset from tangent to Parallel, to 111th mile, temporary corner.
Surface rolling, covered with 2nd rate Pine and Aspen timber.
Soil 1st rate.

——West on 112th Mile——

Variation 13° 50′ East.

72.50 Canon, 500 feet deep, 250 lks. wide, bears S S W.

80.00 Offset from tangent to Parallel, to 112th mile temporary corner.
Surface broken.
Soil 2nd rate.

——West on 113th Mile——

Variation 13° 55′ East.

12.00 Top of mountain ridge, bears S S W.

34.20 Canon, 200 lks. wide, bears South.

77.70 Creek, 6 lks. wide, clear water, gentle current, rocky bottom, course S S E.

80.00 Offset from tangent to Parallel, to 113th mile, temporary corner.
Surface mountainous and stony, covered with 2nd rate Pine and Aspen timber.
Soil 3d.

——West on 114th Mile——

Variation 13° 55′ East.

0.50 Canon, 100 lks. wide, bears S S W.

47.00 Creek, 4 lks. wide, clear water, gentle current, stony bottom, course North.

72.50 Canon, 100 lks. wide, bears South.

80.00 Offset from tangent to Parallel, to 114th mile, temporary corner.
Surface mountainous and stony, covered with 2nd rate

CHAINS

Pine and Fir timber.
Soil 3d rate.

——West on 115th Mile——

Variation 13° 55′ East.

19.50 Top of mountain spur, bears North.

69.00 Leave 2nd rate Pine timber and enter Prairie valley, bears North.

77.00 Creek 6 lks. wide, clear water, gentle currenty, stony bottom, course S S W

80.00 Offset from tangent 9.50 chs. to Parallel to 115th mile temporary corner.
Surface broken.
Soil 3d rate.

Astronomical monument No. 4 is 8.12 chs. East and 4.50 chs. North of 115th mile corner. I therefore make a correction of 12.5 lks. per mile.
Moved temporary corner 4.50 chs. North and set true corner.
Marked stone 7x5x4 -115M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sandstone 22x16x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -115M- respectfully.
No natural objects near.

——East on 114th Mile——

Variation 13° 50′ East.

80.00 Moved temporary corner 4.37.2 chs. North, and set true corner.
Marked stone 5x5x4 -114M- and deposited it 3½ feet in earth. Built conical mound of stone and earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x20x16, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -114M- respectively.
No natural objects near.

——East on 113th Mile——

Variation 13° 50′ East.

80.00 Moved temporary corner 4.24.5 chs. North and set corner.

CHAINS

Marked stone 8x6x3 -113M- and deposited it 3½ feet in earth. Built conical mound of stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound; 2 feet square and 18 in. deep. Set sand stone 26x10x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -113M- respectively. From which point

A Pine tree, 18 in. dia. bears S 15 W., 56 lks. dist.
A pine tree, 18 in. dia. bears N 7 E., 134 lks. dist.

——East on 112th Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 4.11.8 chs. North and set true corner.

Marked stone 9x9x4 -112M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 38x14x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -112M- respectively. From which point

A pitch pine tree, 10 in. dia., bears S 17 W., 57 lks. dist.
A pitch Pine tree, 14 in. dia., bears N. 20 E., 42 lks. dist.

——East on 111th Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 3.99.1 chs. North and set true corner.

Marked stone 9x6x3 -111M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x14x3, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -111M- respectively. From which point.

A pine tree, 30 in. dia., bears S 4 W., 25 lks., dist.
A pine tree, 30 in. dia., bears N 3 E., 138 lks. dist.

——East on 110th Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 3.86.4 chs. North and set true corner.

Marked stone 9x6x3 -110M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over

CHAINS

same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 34x12x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -110M- respectively. From which point

A pitch Pine tree, 20 in. dia., bears S 6 W., 118 lks. dist.
A pitch Pine tree, 15 in. dia., bears N 62 W., 213 lks. dist.

——East on 109th Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 3.73.6 chs. North and set true corner.

Marked stone 9x6x3 -109M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x8x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -109M- respectively. From which point

A double Pine tree, 24 in. dia., bears North 130 lks. dist.
A pine tree, 20 in. dia., bears S 17 E., 61 lks. dist.

——East on 108th Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 3.60.9 chs. North and set true corner.

Marked stone 12x5x4 -108M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x9x4., projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -108M- respectively. From which point

A pitch pine tree, 10 in. dia., bears N 29 W., 8 lks. dist.
A pitch pine tree, 10 in. dia., bears S 29 E., 6 lks. dist.

——East on 107th Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 3.48.2 chs. North and set true corner.

Marked sand stone 7x6x3 -107M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound.

CHAINS

2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -107M- respectively. From which point
A double Pine tree, 24 in. dia., bears North, 130 lks. dist.
A pine tree, 20 in. dia., bears S 17 E., 61 lks. dist.

——East on 106th Mile——

Variation 13° 50′ East.

80.00 Moved temporary corner 3.35.5 chs. North and set true corner.
Marked sand stone 6x6x3 -106M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 16x12x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -106M- respectively. From which point
A pine tree, 16 in. dia., bears S 10 W., 115 lks. dist.
A pine tree, 14 in. dia., bears N. 12 E., 104 lks. dist.

——East on 105th Mile——

Variation 13° 50′ East.

80.00 Moved temporary corner 3.22.8 chs. North and set true corner.
Marked sand stone 13x5x3 -105M- and deposited it 3½ feet in earth. Built conical mound of stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x 8x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -105M- respectively.
From which point
A pine tree, 16 in. dia., bears N 10 E, 69 lks. dist.
A pine tree, 18 in. dia bears N 14 E, 56 lks. dist.

——East on 104th Mile——

Variation 13° 50′ East.

80.00 Moved temporary corner 3.10.0 chs. North and set true corner.
Marked stone 10x10x3 -104M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from

CHAINS

base of mound, 2 feet square and 18 in. deep. Set sand stone 30x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -104M- respectively.
From which point
A pine tree, 14 in. dia., bears N 45 E, 60 lks. dist.
A Fir tree, 13 in. dia., bears S 35 W, 11 lks. dist.

——East on 103d Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 2.97.3 chs. North and set true corner.
Marked sand stone 8x6x3 -103M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x12x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -103M- respectively.
From which point
A Pine tree, 29 in. dia., bears N 40 E, 155 lks. dist.
No other tree near.

——East on 102nd Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 2.84.6 chs. North and set true corner.
Marked sand stone 10x8x3 -102M- and deposited it, 3 feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x13x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -102M- respectively.
From which point
A Norway Pine tree, 50 in. dia., bears S 49 W., 69 lks. dist.
A Pine tree, 28 in. dia., bers S 49 W., 69 lks. dist.

——East on 101st Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 2.71.9 chs. North, and set true corner.
Marked stone 12x10x4 -101M- and deposited it 3' in earth. Built conical mound of earth, 4 feet hig same. Dug pits, 10 lks East and West, from base of.

CHAINS

2 feet square and 18 in. deep. Set sand stone, 20x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -101M- respectively. From which point

A Pine tree, 24 in. dia., bears N 13 W., 57 lks. dist.

A Pine tree, 18 in. dia., bears S 15 E., 60 lks. dist.

——East on 100th Mile——

Variation 13° 50' East.

80.00 Moved temporary corner 2.59.2 chs. North and set true corner.

Marked stone 12x20x4 -100M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x10x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -100M- respectively. From which point

A Pine tree, 14 in. dia., bears S 4 W., 14 lks. dist.

A pine tree, 18 in. dia., bears N 8 W., 109 lks. dist.

——East on 99th Mile——

Variation 13° 50' East.

80.00 Moved temporary corner, 2.46.4 chs. North and set true corner.

Marked stone 6x6x2 -99M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x13x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -99M- respectively. From which point a

Pine tree, 22 in. dia., bears S 10 W., 28 lks. dist.

Pine tree, 22 in. dia., bears N 9 E., 26 lks. dist.

——East on 98th Mile——

Variation 13° 49' East.

80.00 Moved temporary corner, 2.33.7 chs. North and set true corner.

Marked stone 10x6x3 -98M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x5, projecting 8 in. above mound, marked on the North, South,

CHAINS

West and East sides -C- -NM- -1868- -98M- respectively.
From which point
A Pine tree, 13 in. dia., bears N 18 E., 96 lks. dist.
A Pine tree, 12 in. dia., bears S 13 W., 96 lks. dist.

—East on 97th Mile—

Variation 13° 49' East.

80.00 Moved temporary corner 2.21.0 chs. North and set true corner.
Marked sand stone 6x5x4 -97M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x7x7, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -97M- respectively.
From which point
A Pine tree, 16 in. dia., bears S 27 W., 37 lks. dist.
A Pine tree, 13 in. dia., bears N 27 E., 93 lks. dist.

—East on 96th Mile—

Variation 13° 48' East.

80.00 Moved temporary corner 2.08.3 Chs. North and set true corner.
Marked sand stone 6x6x3 -96M- and deposited it 3½ feet in earth. Built conical mound of stone 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 22x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -96M- respectively.
From which point
A Pine tree, 24 in. dia., bears S 40 W., 38 lks. dist.
A Pine tree, 18 in. dia., bears N. 65 W., 146 lks. dist.

—East on 95th Mile—

Variation 13° 49' East.

80.00 Moved temporary corner 1.95.6 Chs. North and set true corner.
Marked stone 6x5x3 -95M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x10x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -95M- respectively.
From which point

CHAINS

A Pine tree, 18 in. dia., bears S 13 W. 111 lks. Dist.
A Pine tree, 18 in. dia., bears N 5 W. 36 lks. dist.

——East on 94th Mile——

Variation 13° 49′ East.

80.00 Moved temporary corner 1.82.8 Chs. North and set true corner.

Marked sand stone 7x6x3 -94M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x13x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -94M- respectively. From which point

A Pine tree, 14 in. dia., bears S 12 W., 112 lks. dist.
A Pine tree, 24 in. dia., bears N 12 E., 138 lks. dist.

——East on 93d Mile——

Variation 13° 46′ East.

80.00 Moved temporary corner 1.70.1 Chs. North and set true corner.

Marked stone 6x6x3 -93M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x14x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -93M- respectively. From which point

A Pine tree, 14 in. dia., bears N 54 W., 37 lks. dist.
A Pine tree, 20 in. dia., bears S 35 W., 63 lks. dist.

——East on 92nd Mile——

Variation 13° 46′ East.

80.00 Moved temporary corner 1.57.4 Chs. North and set true corner.

Marked stone 8x6x3 -92M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 40x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -92M- respectively. No natural objects near.

CHAINS.

——East on 91st Mile——

Variation 13° 45' East,

80.00 Moved temporary corner 1.44.7 chs. North and set true corner on side hill.

Marked stone 6x5x3 -91M- and deposited it, one foot in earth. Set sand stone, 24x12x4 over same, marked on the North, South, West and East sides -C- -NM- -1868- -91M-. No mound, no pits.

From which point

A Pine tree, 20 in. dia., bears S 18 W., 70 lks. dist.

A Pine tree, 18 in. dia., bears N 37 E., 50 lks. dist.

——East on 90th Mile——

Variation 13° 45' East.

80.00 Moved temporary corner 1.32.0 chs. North and set true corner.

Marked stone 10x8x3 -90M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set sand stone 36x14x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -90M- respectively.

From which point

A Pine tree, 20 in. dia., bears S 18 W. 70 lks. dist.

A Pine tree, 18 in. dia., bears N 37 E. 50 lks., dist.

——East on 89th Mile——

Variation 13° 45' East.

80.00 Moved temporary corner 1.19.2 chs. North and set true corner.

Marked stone 8x6x3 -89M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -89M- respectively.

No natural objects near.

——East on 88th Mile——

Variation 13° 45' East.

80.00 Moved temporary corner 1.06.5 chs. North and set true corner, on side of bluff.

Marked stone 5x5x4 -88M- and deposited it, 3½ feet in earth. Built conical mound of stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound,

CHAINS

2 feet square and 18 in. deep. Set sand stone 30x8x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -88M- respectively. No natural objects near.

——East on 87th Mile——

Variation 13° 44' East.

80.00 Moved temporary corner 93.8 lks. North and set true corner.

Marked sand stone 13x5x3 -87M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x16x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -87M- respectively.

From which point

A Pine tree, 8 in. dia. bears S 19 W. 42 lks. dist.

A Pine tree, 24 in. dia. bears N 21 E., 101 lks. dist.

——East on 86th Mile——

Variation 13° 41' East.

80.00 Moved temporary corner 81.1 lks. North and set true corner.

Marked stone 6x6x4 -86M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 22x12x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -86M- respectively.

From which point

A yellow Pine tree, 16 in. dia., bears N 58 E., 72 lks. dist.

A yellow Pine tree, 16 in. dia. bears S 58 W., 18 lks. dist.

——East on 85th Mile——

Variation 13° 38' East

80.00 Moved temporary corner 68.4 lks. North, and set true corner

Marked sand stone 12x6x4 -85M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set sand stone 20x10x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -85M- respectively.

CHAINS

From which point
A Pine tree, 24 in. dia. bears N 22 E., 140 lks. dist.
A Pine tree, 14 in. dia. bears S 26 W., 60 lks. dist.

——East on 84th Mile——

Variation 13° 38′ East.

80.00 Moved temporary corner 55.6 lks. North and set true corner, on side hill, facing the North.
Marked sand stone 8x6x2 -84M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -84M- respectively.
From which point
A Pine tree, 20 in. dia., bears N. 10 E. 10 lks. dist.
A Pine tree, 14 in. dia., bears S. 13 E., 32 lks. dist.

——East on 83d Mile——

Variation 13° 37′ East.

80.00 Moved temporary corner 42.9 lks. North and set true corner.
Marked stone 10x6x3 -83M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 18x8x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -83M- respectively.
From which
A Pine tree, 12 in. dia., bears N. 12 W. 64 lks. dist.
A Pine tree, 14 in. dia., bears S. 12½ W. 47 lks. dist.

——East on 82nd Mile——

Variation 13° 33′ East.

80.00 Moved temporary corner 30.2 lks. North and set true corner.
Marked stone 12x10x3 -82M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 22x8x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -82M- respectively.
From which
A yellow Pine tree, 12 in. dia. bears N 5 E., 95 lks. dist.
A yellow Pine tree, 18 in. dia. bears S 13 W., 190 lks. dist.

CHAINS

——East on 81st Mile——

Variation 13° 35′ East.

8000 Moved temporary corner 17.5 lks. North and set true corner.

Marked stone 6x3x2 -81M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -81M- respectively. From which point

A white Pine tree, 18 in. dia. bears S 10 W. 27 lks. dist.
A white Pine tree, 18 in. dia. bears N 14 E. 96 lks. dist.

——East on 80th Mile——

Variation 13° 35′ East.

8000 Moved temporary corner 4.8 lks. North and set true corner. Marked stone 6x5x4 -80M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -80M- respectfully. No natural objects near.

Observations for asimuth at astronomical monument No. 4 on d Ursae Minoris. Dec. 86° 36′ 42″.4. R.A. 18h 14m 51.5, and 51 Cephei Dec. 87° 14′ 05″.6. R.A. 6h 37m 39. Aug. 27, 1868. Chronometer fast at mean noon, on Solar time, 5h 48m 20.8 with a loosing rate of 2.2s per day.

	h	m	s
Chronometer time of observation of Ursae Minoris, upper transit	1	36	45
Chron— time of observation of 51 Cephei	1	59	17
Chronometer interval		22	32
Chronometer rate			0.3
Reduction to Sidereal time			03.7
Difference in time of upper and lower transit		22	36

CHAINS

Difference in lower and upper Culminations as shown in Nautical Almanac 22. 47.5

Difference of observed time, minus difference of right assension 11.5

—Computation—

A. 11'.5=1725	Log =2.236780	Magnetic Va
Cos d 86° 36' 42"=	8.771681	13° 50' East
Cos d 87° 14' 05"=	8.683359	Error of asi-
Sec 37°=	0.097651	muth 5.75s
Cosec 6° 06' 13"=	0.060827	—0.759307

——West on 116th Mile——

Variation 13° 50' East.

8.00 Indian trail, bears SW.

50.00 Valley, bears South.

63.50 Creek, 35 lks. wide, clear water, 8 in. deep, swift current, stony bottom, course S S E.

80.00 Offset from tangent to Parallel, to 116th mile corner, a large sand stone boulder, 5x4x2½ feet above surface, marked on the North, South, West and East sides -C- -NM- -1868- -116M- respectively.

From which point

A large sand stone boulder 15x10x4 feet bears N 60 E. 42 lks. dist.

Surface broken.

Soil in valley 1st rate.

Balance 2nd rate.

——West on 117th Mile——

Variation 13° 50' East.

20.00 Top of mountain ridge, bears S S W.

42.00 Snowy Peak, bears N 32 W.

75.75 Creek 10 lks. wide, clear water, swift current, stony bottom, course SW.

77.10 Creek, 2 lks. wide, swift current, clear water, gravelly bottom, course S W.

80.00 Offset from tangent to Parallel to 117th mile corner.

Marked sand stone 8x6x4 -117M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x8, projecting 8 in. above mound, marked on

CHAINS

the North, South, West and East sides -C- -NM- -1868- -117M- respectively

From which point

A pine tree, 18 in. dia. bears N 10 E. 93 lks. dist.

A Pine tree, 20 in. dia., bears S 11 E. 173 lks. dist.

Surface mountainous and stony, covered with 3d rate Pine timber and an undergrowth of Oak and Aspen brush.

Soil 3d rate.

——West on 118th Mile——

Variation 12° to 15° East.

18.25 Creek, 40 lks. wide, clear water, about 8 in. deep, rapid current, gravelly and stony bottom, course E S E.

32.50 Canon, 2 chs. wide, bears NE. A creek about 6 feet North of line.

41.00 Creek in deep canon, 5 lks. wide, rapid current, course E N E.

80.00 Offset from tangent to Parallel, to 118th mile corner.

Marked stone 11x6x3 and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x12x7 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -118M- respectively.

No natural objects near.

General surface mountainous, covered with 2nd rate Pine timber and brush.

Soil 1st and 2nd.

Aug. 28th. Measuring chain compared with standard and found correct

——West on 119th Mile——

Variation 13° to 15° 30′ East.

13.00 Top of ridge, bears S 10 E.

51.00 Enter marsh, bears SW.

66.00 Creek, 3 lks. wide, clear water, rapid current, course N N W.

80.00 Offset from tangent to Parallel, to 119th mile corner in thick fallen timber.

Deposited charred block 6x6x4—3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, three feet in ground, project-

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ing 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -119M- respectively.
No natural objects near.
Surface broken, covered with thick fallen timber and an undergrowth of Aspen, Fir and Pine brush.
Soil 3d rate.

——West on 120th Mile——

Variation 13° 55′ East.

40.00 Top of ridge, bears S S W.

56.00 Leave fallen timber and enter Prairie, bears S S E.

79.50 Enter young growth of Pine and Fir timber, bears SW.

80.00 Offset from tangent to Parallel to 120th mile corner, in small grove. Marked stone 8x6x4 -120M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x14x7, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -120M- respectively. From which point
A fir tree 18 in. dia., bears S 22 E, 15 lks. dist
A fir tree, 8 in. dia., bears N 8 E, 68 lks. dist.
Surface broken, 1st 56 chs. covered with fallen timber and small aspen and fir timber, balance open prairie.
Soil 2nd rate.

——West on 121st Mile——

Variation 13° 50′ East.

1.00 Leave small grove of timber, bears SE., and enter prairie valley.

80.00 Offset from tangent to Parallel to 121st mile corner. Marked stone 10x4x4 -121M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x17x10, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -121M- respectively.
No natural objects near.
Surface gently rolling prairie.
Soil 2nd rate.

——West on 122nd Mile——

Variation 13° 55′ East.

25.00 Enter slough, covered with willow brush bears South.

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33.50 Leave slough, bears SW.

80.00 Offset from tangent to Parallel, to 122nd mile corner. Marked stone 10x7x3 -122M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set iron stone 36x15x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -122M- respectively. No natural objects near.
Surface Prairie, gradually descending to the South and West.
Soil 1st rate.

——West on 123d Mile——

Variation 13° 50′ East.

6.50 Indian trail, bears NW.

11.80 Creek, 8 lks. wide, clear water, rapid current, stony bottom, course SE.

20.00 Enter scattering 2nd rate Pine and Aspen timber, bears North and South.

80.00 Offset from tangent to Parallel, to 123d mile corner. Deposited charred block, 10x6x4, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -123M- respectively.
No natural objects near.
Surface mountainous, covered with Aspen and Pine brush.
Soil 2nd rate.
Aug. 29th. Measuring chain compared with standard and found correct.

——West on 124th Mile——

Variation 13° 50′ East.

80.00 Place for 124th mile corner on side of mountain.
Impossible to establish it.
Surface mountainous, covered with stone.
Soil 3d rate.

——West on 125th Mile——

Variation 13° 50′ East.

CHAINS

4.00 Foot of snowy mountain ridge, bears South.

52.00 Summit of snowy mountain ridge, bears S S E.

55.00 Built conical witness mound of stone 4 feet high, set sand stone 20x10x8, marked on the North -C- South -NM- West -1868-.

80.00 Offset from tangent to Parallel to 125th mile corner. Deposited stone 10x6x4 -125M- and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set quartz stone 23x12x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -125M- respectively.

No natural objects near.

Surface mountainous and stony, with some prairie land.

Soil 3d rate.

——West on 126th mile——

Variation 13° 50' East.

10.00 Enter 2nd rate pinon, pine timber, bears N and S.

23.50 Creek, 10 lks. wide, clear water, rapid current, stony bottom, course S S W.

30.00 Leave timber, bears W N W.

80.00 Offset from tangent to Parallel, to 126th mile corner. Marked stone 10 x 6 x 3 -126M- and deposited it, 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set quartz stone 20 x 12 x 6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -126M- respectfully.

No natural objects near.

Surface broken, covered with stone and sand quartz.

Soil 3d rate.

——West on 127th mile.——

Variation 13° 50' East.

64.00 Creek, in canon, 1,000 feet deep.

80.00 Place for 127th mile corner, on side of cliff, impossible to establish corner.

Surface mountainous and stony, mostly sand stone quartz.

Soil 3d rate.

Aug. 30th. Measuring chain compared with standard and found correct.

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——West on 128th mile——

Variation 13° 50′ East.

80.00 Offset from tangent to Parallel, to 128th mile corner.
Marked stone 10x6x3 -128M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x12x8 projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -128M- respectively.
No natural objects near.
Surface mountainous and stony, covered with aspen and Pine brush.
Soil 3d rate.

——West on 129th mile——

Variation 13° 50′ East.

30.00 Foot of mountain, ridge bears NW.

80.00 Offset from tangent to Parallel, to 129th mile corner.
Marked stone 10x6x5 -129M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x8x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -129M- respectively.
From which point
A Pine tree, 24 in. dia. bears S 72 E, 51 lks. dist.
A Pine tree, 24 in. dia. bears N 60 W, 35 lks. dist.
Surface mountainous and stony.
Soil 3d rate.

——West on 130th mile——

Variation 13° 50′ East.

13.00 Leave timber, and enter sage brush, Prairie bears North.

79.50 Enter canon, bears NW.

80.00 Offset from tangent to Parallel, to 130th mile corner.
Marked stone 10x6x4 -130M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -130M- respectively.

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From which
A Pine tree, 30 in. dia. bears S 35 E. 184 lks. dist.
No other tree near
Surface rolling.
Soil 3d rate.

——West on 131st mile——

Variation 13° 50′ East.

1.50 Leave canon, bears NW.

30.00 Enter pinion Pine and volcanic stone region.

51.40 Leave same and enter valley, bears N and S.

73.00 Creek, 4 lks. wide, stony bottom, course N N W.

80.00 Offset from tangent to Parallel, to 131st mile corner, on bank of creek, 4 lks. wide, clear water, gentle current, sandy bottom, course N N W. Marked stone 6x4x3 -131M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set granite stone 20x10x8 projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -131M- respectively.
No natural objects near.
Surface rolling.
Soil 3d rate.

——West on 132nd mile——

Variation 13° 50′ East.

5.00 Creek, 10 lks. wide, low banks, clear water, swift current, stony bottom, course North.
An old cabin about 3 chs. North.

80.00 Offset from tangent to Parallel to 132nd mile corner. Marked volcanic stone 12x6x4 -132M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set pitch Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -132M- respectively.
No natural objects near.
Surface, gradual descent to West and NW.
Soil 3d rate, covered with gravel, washed from the mountains and sage brush.

CHAINS.

——West on 133d mile——

Variation 11° 50′ East.

67.00 Top of volcanic hill, covered with stone.

Variation 18° East.

80.00 Offset from tangent to Parallel, to 133d mile corner. Marked stone 12x6x4 -133M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x8x7, projecting 8 ins. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -133M- respectively. From which point a

Snow peak, bears S 15 W.

Conical Peak, in valley, bears S 72 W.

Conical Peak, in mountains, bears N 67 E.

Surface gently rolling.

Soil 2nd rate.

Aug. 31st. Measuring chain compared with standard and found correct.

——West on 134th mile——

Variation (at corner) 12° East.

Variation 11 chs. West 13° East.

20 chs. West 13° 50′ East.

77.50 Road leading to deserted cabins near base of mountains, bears SW.

80.00 Offset from tangent to Parallel, to 134th mile corner. Marked stone 10x6x3 -134M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -134M- respectively. No natural objects near.

Surface gently rolling, covered with sage brush.

Soil 2nd rate.

——West on 135th mile——

Variation 13° 50′ East.

41.00 Road bears SW.

80.00 Offset from tangent to Parallel to 135th mile corner. Marked stone 6x4x3 -135M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over

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same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -135M- respectively.
No natural objects near.
Surface gently rolling.
Soil 3d rate.

——West on 136th mile——

Variation 13° 50′ East.

2.00 Road from San Francisco Col. to La Costilla, N. M. bears W S W.

30.00 Enter pinion Pine timber, bears S S W.

38.00 Top of ridge, covered with volcanic stone.

45.00 Leave scattering pinion Pine timber, bears S S W.

52.00 Road from San Francisco, Col. to San Costiall, N. M. bears W N W.

52.60 Enter scattering pinion Pine timber, bears W N W.

80.00 Offset from tangent to Parallel to 136th mile corner. Marked volcanic stone 8x6x4 -136M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x16x12, projecting 8 in. above mound, marked on the North, South, West and East Sides -C- -NM- -1868- -136M- respectively.
No natural objects near.
Surface broken. The last 50 chs. mostly covered with pinion, Pine timber and volcanic stone.
Soil 3d rate.

——West on 137th mile——

Variation 13° 50′ East.

12.00 Leave scattering pinion Pine timber and enter valley, bears North.

47.00 American flag in front of Meyer & Co's store and P. O. in centre of village of La Costilla, N. M., bears S 52 W.

52.50 Canal for irrigation, couse NW.

63.25 Canal for irrigation, course NW.

80.00 Offset from tangent to Parallel, to 137th mile corner. Marked volcanic stone 7x6x3 -137M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high,

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over same. Dug pits 10 lks. East & West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x8x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -137M- respectively.
No natural objects near.
Surface level valley, covered with sage brush.
Soil 2nd rate.

——West on 138th mile——

Variation 13° 50' East.

18.00 Canal for irrigation, course N N W.
47.50 Road from La Costilla, N. M. to Fort Garland, Col. bears North. Baldy mountain near Fort Garland bears 4 E. American flag in front Meyer & Co's store and P. O. in centre of Village of La Costilla, N. M. bears S 2 W.
56.50 Canal for irrigation, course North.
58.70 Canal for irrigation, course North.
62.00 Rio Costilla, 75 lks. wide, clear water, rapid current, stony bottom, course N 10 W
63.75 Road, bears North.
74.50 Road from La Costilla to Conejos, Col, bears N N W.
80.00 Offset from tangent to Parallel to 138th mile corner. Marked stone 10x6x4 -138M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x18x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -138M- respectively.
No natural objects near.
Surface level, covered with sage brush and various kinds of cactus.
Soil 3d rate.
Note: The village of La Costilla, N. M. at this point is divided by the line, leaving nearly ¾ of it in N. M.

——West on 139th mile——

Variation 13° 50' East.

70.50 Road leading to base of Ute Mountain, bears W S W.
86.00 Offset from tangent to Parallel to 139th mile corner on NW side of road. Marked stone 10x6x4 -139M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and

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West from base of mound, 2 feet square and 18 in. deep.
Set volcanic stone 30x14x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -139M- respectively.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate and gravelly.
Sept. 1st. Measuring chain compared with standard and found correct.

——West on 140th mile——

Variation 13° 50' East.

80.00 Offset from tangent to Parallel, to 140th mile corner.
Marked stone 6x6x4 -140M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set volcanic stone 20x8x8 projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -140M- respectfully.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil gravelly, 3d rate.

——West on 141st mile——

Variation 13° 50' East.

80.00 Offset from tangent to Parallel, to 141st mile corner.
Marked stone 8x6x4 -141M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x16x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -141M- respectfully.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate, gravelly.

——West on 142nd mile——

Variation 13° 50' East.

80.00 Offset from tangent to Parallel to 142nd mile corner.
Marked stone 6x6x4 -142M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of

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mound, 2 feet square and 18 in. deep. Set volcanic stone 24x10x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -142M- respectfully.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate and gravelly.

——West on 143d mile——

Variation 13° 50' East.

80.00 Offset from tangent to Parallel, to 143 mile corner.
Marked stone 5x4x3 -143M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x14x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -143M- respectfully.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate, gravelly.

——West on 144th mile——

Variation 13° 50' East.

80.00 Offset from tangent to Parallel to 144th mile corner.
Marked stone 6x4x3 -144M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound 2 feet square and 18 in. deep. Set volcanic stone 24x10x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -144M- respectfully.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate, gravelly.

——West on 145th mile——

Variation 13° 50' East.

80.00 Offset from tangent to Parallel to 145th mile corner.
Marked stone 6x5x3, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x13x7, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -145M- respectfully.

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No natural objects near
Surface level, covered with sun flowers and cactus
Soil 2nd rate

——West on 146th mile——

Variation 13° 50' East

80.00 Offset from tangent to Parallel to 146th mile corner
Marked stone 6x4x3 -146M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -146M- respectfully
From which 36 ant
Ute mountain, bears South
Baldy mountain, near Fort Garland, bears N 74½ E
Two mountain Peaks, down valley connected by a ridge
East, bears S 8 41 W
Mountain ridge, bears S 64W about 2 miles dist
Mountain Peak, bears S 64 E
Mountain Peak, bears S 32½ E
Surface level, covered with sage brush
Soil 3rd rate

——West on 147th Mile——

Variation 13° 50' East

51.00 Bend in creek, 50 lks. wide, clear water, rapid current, gravelly bottom, course W S W and W N W

59.00 Rio Costilla, 100 lks. wide, low banks, clear water, rapid current, gravelly bottom, course S S W

80.00 Offset from tangent to Parallel to 147th mile corner
Marked stone 6x4x3 -147M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x12x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -147M- respectfully
No natural objects near
Surface nearly level
Soil 3d rate gravelly

——West on 148th Mile——

Variation 13° 45' East

70.15 Offset from tangent to Parallel, 8.27.3 lks. North to As-

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tronomical Monument No. 5 which is represented by a volcanic cobble stone mound, 8 feet at base, 4½ feet high, and 3½ feet at top. Set volcanic stone 36x12x12, marked on the North "Colorado" South "New Mexico" East "37NL" West "1868" on bank of Rio Grande.

Sept. 2nd. Measuring chain compared with standard and found correct.

Observations for Asimuth at Astronomical Monument No. 5, on d Ursae Minoris Dec. 86° 36' 43", RA 18 h 14 m 54 s, and 51 Cephei Dec. 87° 14' 04" 1, RA 6 h 37 m 43.8 s Sept. 5th, 1868. Chronometer fast at mean noon, on Solar time 5 h 49 m 34 s, with a loosing rate of 15 s per day.

	h	m	s
Chronometer time of observations of d Ursae Minoris, upper transit	10	03	00
Chro. time of observations of 51 Cephei	10	25	44
Chronometer interval		22	44
Chronometer rate			0.25
Reduction to Sidereal time			3.61
Difference in time of upper and lower transit		22	47.86
Difference in time of upper and lower culminations as shown in Nautical Almanac		22	52
Difference of observed time, minus difference of right assension			4.14

Computation—

Δ—4.14 s—62.1 s	Log =	1.79309
Cos. d 86° 36' 43"		8.77306
Cos. d 87° 14' 04"		8.68366
Sec. c 37	Log =	0.09765
Cosec. 6.09.13		0.96982
Error of asimuth 2.07"		0.31722

——West on 148th Mile——

Variation 2° East.

West from Astronomical Monument No. 5 which is 70.15 chs. West from 147th mile corner.

1.75 Rio Grande, course SE, general course S S E. It flows through a most regular perpendicular canon, composed of

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volcanic rock 70 feet below the common level of the country. It retains the sameness of width and depth for many miles and nothing whatever indicates its existence, until arriving at its edge, the deep abyss below is first discovered. It has a swift current, about 6 miles per hour, clear water, rocky bottom and its average depth, about 5 feet.

9.85 Place for 148th mile corner in river and impossible to establish it.
Surface level.
Soil 3rd rate.

——West on 149th Mile——

Variation.
From a point on West bank of Rio Grande on line 1 formed a right angle triangle ABC, measured angles A=90 B 66° 35', hence the angle C=23° 25', measured side AB= 5 chs.
Point C Astronomical Mo nent.

Sin. 23 25' =		9.599244
Sin. 66 35' =		9.962672
Log. 5 chs. =		0.698970
	11.34.5 chs.	1.062398

Therefore 1.79½ lks. over Rio Grande.
Variation at this point 2° East, at a point 5 chs. South 20° East.

80.00 Offset from tangent to Parallel to 149th mile corner.
Marked volcanic stone 8x7x4 -149M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -149M- respectfully.
No natural objects near.
Surface gently rolling, covered with volcanic stone.
Soil 2nd rate.

——West on 150th Mile——

Variation (at corner) 12° 50' East.

80.00 Offset from tangent to Parallel, to 150th mile corner.
Marked stone 6x6x6 -150M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over

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same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 22x8x8 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -150M- respectively. Variation changes from 12° 50' to 14° East.
Surface gently rolling, covered with volcanic stone and gravel.
Soil 3d rate.
Sept. 6th. Measuring chain compared with standard and found correct.

——West on 151st Mile——

Variation 13° 50' East.

80.00 Offset from tangent to Parallel, to 151st mile corner.
Marked stone 8x6x4 -151M- and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -151M- respectively.
Va changeable, on line.
From which
A conical mound bears N 35 E, 40 chs. dist.
Ute Mountain, bears S 52 E.
Conical Peak, bears S 4 E.
High point on mountain ridge bears S 12 E 18 miles dist.
Mountain ridge, bears S 5 W.
Conical Peak, bears S 15 W.
Conical Peak, on mountain ridge bears S 22 W., 30 miles dist.
Surface gently rolling, covered with volcanic stone and gravel.
Soil 3d rate.

——West on 152nd Mile——

Variation 12° East.

60.00 Foot of mountain ridge, 800 feet high, bears S S E.

80.00 Offset from tangent to Parallel, to 152nd mile corner, on top of mountain ridge.
Marked volcanic stone 10x6x4 -152M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set volcanic

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stone 30x14x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -152M- respectively.
No natural objects near.
Variation 12° East.
Surface except mountain ridge rolling, covered with volcanic stone.
Soil 3d rate.

——West on 153d Mile——

Variation 12° East.

30.00 Leave mountain ridge and enter valley, bears NW.

80.00 Offset from tangent to Parallel to 153d mile corner.
Marked stone 8x6x4. -153M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x10x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -153M- respectively.
No natural objects near.
Surface except ridge, gently rolling.
Soil 2nd rate.

——West on 154th Mile——

Variation 13° East.

80.00 Offset from tangent to Parallel to 154th mile corner.
Marked stone 8x8x3 -154M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square, and 18 in. deep. Set volcanic stone 30x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -154M- respectively.
No natural objects near.
Surface gently rolling Prairie covered with stone.
Soil 3d rate.
Sept. 7th. Measuring chain compared with standard and found correct.

——West on 155th Mile——

Variation 12° 50′ East.

80.00 Offset from tangent to Parallel, to 155th mile corner.
Marked stone 6x6x4 -155M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound,

CHAINS

2 feet square and 18 in. deep. Set volcanic stone 48x13x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM -1868- -155M- respectively.
No natural objects near.
Surface gently rolling, covered with sage brush and volcanic stone.
Soil 3d rate.

——West on 156th Mile——

Variation 13° 20' East.

80.00 Offset from tangent to Parallel to 156th mile corner.
Marked stone 10x10x6 -156M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 16x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -156M- respectively.
No natural objects near.
Surface gently rolling, covered with sage brush and volcanic stone.
Soil 3d rate.

——West on 157th Mile——

Variation 13° 50' East.

80.00 Offset from tangent to Parallel to 157th mile corner.
Marked stone 8x6x4 -157M- and deposited it, 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x12x6, projecting 8 in. above mound marked on the North, South, West and East sides -C- -NM- -1868- -157M- respectively.
No natural objects near.
Surface gently rolling, covered with volcanic gravel, sage brush and weeds.
Soil 3d rate.

——West on 158th Mile——

Variation 13° 20' East.

41.00 A stone mound, about 4 feet at base and 2½ feet high, bears South 475 lks. No marks discovered on it, and supposed to have been placed there by some former surveying party.

80.00 Offset from tangent to Parallel to 158th mile corner.
Marked stone 8x6x4 -158M- and deposited it, 3½ feet in

CHAINS

earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x14x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -158M- respectively. No natural objects near.

Surface gently rolling, covered with volcanic gravel and stone.

Soil 3d rate.

Sept. 8th. Measuring chain compared with standard and found correct.

——West on 159th Mile——

Variation 13° 20' East.

80.00 Offset from tangent to Parallel, to 159th mile corner. Marked stone 5x5x4, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x14x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -159M- respectively. From which point a

Mound, bears N 9 E, 2 miles distant.

Point of mountain ridge, bears N 17 E 8 m dist.

Point of mountain ridge, near Rio Grand bears N 67 E. 11 miles dist.

Ute mountain, bears S 75 E.

Conical Peak on San Antonio Mountain bears S. 30 W.

Mountain Peak, bears N 70 W, 14 miles dist.

Surface gently rolling, covered with stone, sage brush and weeds.

Soil 3d. rate.

——West on 160th Mile——

Variation 13° 40' East.

80.00 Offset from tangent to Parallel to 160th mile corner. Marked stone 10x6x3 -160M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone, 24x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -160M- respectively. No natural objects near.

CHAINS

Surface gently rolling.
Soil 3d. rate.

——West on 161st. Mile——

Variation 13° 40' East.

80.00 Offset from tangent to Parallel, to 161st mile corner. Marked stone 12x6x6 -161M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x12x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -161M- respectively. No natural objects near.
Surface gently rolling prairie.
Soil 3d rate.

——West on 162nd Mile——

Variation 13° 40' East.

39.40 Road leading from Conejos Col. to Santa Fe, N. M. bears North and South. Built witness mound of earth, and set volcanic stone 18x12x4, marked on the North -C- South -NM- West -1868-. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep.

80.00 Offset from tangent to Parallel, to 162nd mile corner. Marked stone 8x6x4 -162M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x12x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -162M- respectively. No natural objects near.
Surface gently rolling, covered with sage brush and weeds.
Soil 3rd rate.

——West on 163d Mile——

Variation 13° 40' East.

~~74.75 A mound bears S 8 E.~~
A mound, bears S 10 E.

80.00 Offset from tangent to Parallel, to 163d mile corner. Marked stone 10x6x4 and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x16x4, projecting 6 in. above mound, marked on the North, South,

CHAINS

West and East sides -C- -NM- -1858- -163M- respectively.
No natural objects near.
Surface gently rolling, covered with sage brush and weeds
Soil 3d. rate.

——West on 164th Mile——

Variation 13° 40' East.

65.40 Road, bears North and South. Built witness mound of earth, 4 feet high. Set volcanic stone 14x6x5, projecting 6 in. above mound, marked on the North, South and West sides -C- -NM- -1868- respectfully.

80.00 Offset from tangent to Parallel to 164th mile corner. Marked stone 6x6x3 -164M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 16x8x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -164M- respectively.
No natural objects near.
Surface gently rolling prairie.
Soil 3d. rate.

——West on 165th Mile——

Variation 13° 20' East.

30.50 Road bears NW and SE.
73.80 Top of bluff, bears N N E.
76.00 Canon, bears North.
79.50 Leave canon, bears North
80.00 Offset from tangent to Parallel to 165th mile corner, on side of hill.
Marked stone 6x6x3 -165M- and deposited it 3½ feet in earth. Built conical mound of stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -165M- respectively.
No natural objects near.
Surface gently rolling, covered with volcanic stone, sage brush and weeds.
Soil 3d. rate.
Sept. 9th. Measuring chain compared with standard and found correct.

CHAINS

——West on 166th Mile——

Variation 13° 20' East.

37.50 Top of hill, Village of San Antonio, bears N 18 E.

37.50 Top of bluff, 300 feet high, bears N 30 E.

Variation 13° 20' East.

San Antonio Village, bears N 83 E and N. 32 W.

San Antonio Peak bears S 8 E.

Mountain peak, bears S 8 W-S 12 W-N 55 W.

Mountain Peak bears N 6 E.

41.50 Base of bluff, a creek, 90 lks. wide, clear water, 6 in. deep, rapid current, gravelly bottom, course North.

42.50 Enter bottom, covered with willow brush and scattering cottonwood trees, bears S S E. An old sheep corral just south of line.

Variation (in bottom) 13° 51' East.

43.00 Rio San Antonio, 50 lks. wide, clear water, rapid current, stony bottom, course North.

80.00 Offset from tangent to Parallel to 166th mile corner, in bottom.

Marked stone 6x6x3 -166M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set Pine post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- 166M- respectively.

From which

A cottonwood tree, 14 in. dia., bears S 40 E., 105 lks. dist.

No other tree near.

Soil in valley 1st rate.

Surface except ridge, level.

——West on 167th Mile——

Variation 13° 50' East.

39.00 Rio de los Pinos, 70 lks. wide, clear water, 20 in. deep, swift current, stony bottom, course E N E.

Leave willow brush and cottonwood timber.

50.00 Canal for irrigation, 10 lks. wide, now dry.

74.50 Canal for irrigation, 15 lks. wide, and enter recently cultivated fields, bearing North.

80.00 Offset from tangent to Parallel, to 167th mile corner.

Marked stone 6x4x3 -167M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over

CHAINS

same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone, 24x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -167M- respectively. No natural objects near.
Surface level bottom.
Soil 1st rate.

——West on 168th Mile——

Variation 13° 50' East.

0.50 Leave field, bears NW.

33.00 Leave bottom, bears SW and North.

43.00 Top of bluff, 350 feet high, 25 feet from summit, it becomes perpendicular—covered with volcanic rock, bears SW and North.
Village of San Antonio, bears S 60 E.
Variation 10° East.
3 chs. West 16° East.

59.00 Wood road, bears NW.

63.50 Enter scattering pinion Pine timber, bears NW.

80.00 Offset from tangent to Parallel, to 168th mile corner. Marked stone 7x6x4 -168-M and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 14x8x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -168M- respectively. No natural objects near.
Surface level (except bluff), covered with volcanic stone and sage brush and for 15 chs. 3d rate, pinion Pine timber.
Soil 3d. rate.

——West on 169th Mile——

Variation 13° 55' East.

10.00 Top of bluff, bears E N E.

30.00 Leave Pine timber, bears E N E.

57.00 Enter 3d. rate scrub pinion Pine timber, bears W N W.

68.00 Leave same and enter sage brush Prairie, bears W N W.

80.00 Offset from tangent to Parallel, to 169th mile corner Marked stone 10x6x4 -169M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x14x5, projecting 8 in. above mound, marked on the North, South,

CHAINS

West and East sides -C- -NM- -1868- -169M- respectively.
No natural objects near.
Surface rolling and stony.
Soil 3d. rate.
Sept. 10th. Measuring chain compared with standard and found correct.

——West on 170th Mile——

Variation 13° 50′ East.

64.50 Dry bed of creek, 10 lks. wide, stony bottom, course NE.

80.00 Offset from tangent to Parallel to 170th mile corner.
Marked stone 4x4x3 -170M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x10x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -170M- respectively.
No natural objects near.
Surface broken, covered with stone, and sage brush.
Soil 3d. rate.

——West on 171st Mile——

Variation 13° 50′ East.

56.50 Canon, 100 lks. wide, bears NE.

80.00 Offset from tangent to Parallel, to 171st mile corner.
Marked stone 6x6x4 -171M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -171M- respectively.
No natural objects near.
Surface rolling Prairie.
Soil 2nd rate.

——West on 172nd Mile.——

Variation 13° 50′ East.

52.00 Enter 2nd rate Pine timber, bears NE.

55.25 Road, bears E N E.

70.00 Leave timber, bears SE.

80.00 Offset from tangent to Parallel to 172nd mile corner, in trail which bears W N W.
Marked stone 5x5x4 -172M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over

CHAINS

same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x9x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -172M- respectively. No natural objects near.
Surface broken Prairie.
Soil 2nd rate.

——West on 173d Mile——

Variation 13° 50' East.

7.00 Enter scattering 2nd rate Pine timber, bears North.
32.00 Indian trail, bears SW.
38.79 Volcanic stone boulder 10x6x4 feet, about 2 feet south of line.
80.00 Offset from tangent to Parallel to 173d mile corner. Marked stone 7x6x4 -173M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 13x10x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -173M- respectively. No natural objects near.
Surface broken Prairie.
Soil 2nd rate.
Sept. 11th. Measuring chain compared with standard and found correct.

——West on 174th Mile——

Variation 13° 50' East.

30.00 Enter 2nd rate Pine timber, bears SW.
53.80 Indian trail, bears N N W.
54.00 Dry bed of creek, course N N W.
80.00 Offset from tangent to Parallel, to 174th mile corner. Marked stone 12x7x3 -174M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 15x12x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -174M- respectively. From which point a
Norway Pine tree, 18 in. dia., bears S 20 W, 78 lks. dist.
Yellow Pine tree, 12 in. dia., bears N 68 E, 31 lks. dist.
Surface broken, last half covered with 2nd rate Pine timber.
Soil 2nd rate.

CHAINS

——West on 175th Mile——

Variation 13° 31′ East.

49.50 Cañon, 200 lks. wide, bears N N E.

64.50 Cañon, 150 lks. wide, bears North.

80.00 Offset from tangent to Parallel to 175th mile corner, which is a pine tree, 8 in. dia. Bark removed, squared, etc., marked on the North, South, West and East sides -C- -NM- -1868- -175M- respectively.

From which point

A Pine tree, 24 in. dia., bears N 63 W., 41 lks. dist.

A pinion Pine tree, 10 in. dia., bears S 55 W., 31 lks. dist.

Surface broken, covered with 2nd rate Pine timber and an undergrowth of Pine and aspen brush

Soil 2nd rate

——West on 176th Mile——

Variation 13° 52′ East.

38.00 Leave Pine and Aspen timber and enter Prairie bears South and NW.

53.00 Enter 2nd rate Pine and Fir timber, bears NE and S S W.

80.00 Offset from tangent to Parallel, to 176th mile corner.

Marked stone 13x6x4 -176M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x16x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -176M- respectively.

From which point

A Pine tree, 24 in. dia., bears S 68 W., 72 lks. dist.

A Fir tree, 12 in. dia., bears N 75 E. 31 lks. dist.

Surface broken, covered with 2nd rate Pine and Fir timber.

Soil 2nd rate.

Sept. 12th. Measuring chain compared with standard and found correct.

——West on 177th Mile——

Variation 13° 52′ East.

49.00 Leave Pine, Aspen and Fir timber, bears W S W.

73.50 Enter Pine, Aspen and Fir timber, bears N and S.

80.00 Offset from tangent to Parallel, to 177th mile corner.

Marked stone 8x6x3 -177M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound,

CHAINS

2 feet square and 18 in. deep. Set sand stone 22x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -177M- respectively. From which point

A Fir tree, 20 in. dia., bears N 13 W., 28 lks. dist.

A Fir tree, 18 in. dia. bears S 5 E., 47 lks. dist.

Surface broken, covered with 2nd rate Pine and Aspen and Fir timber.

Soil 2nd rate.

——West on 178th Mile——

Variation 13° 52' East.

80.00 Offset from tangent to Parallel, to 178th mile corner. Marked stone 10x6x4 -178M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 16x14x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -178M- respectively. No natural objects near.

Surface rolling, covered with fallen timber, destroyed about 6 years previous.

Soil 2nd rate.

——West on 179th Mile——

Variation 13° 52' East.

60.00 Top of bluff, descending along side of same.

80.00 Offset from tangent to Parallel to 179th mile corner. Marked stone 6x4x3 -179M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x20x16, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -179M- respectively. From which

A Pine tree, 14 in. dia., bears S 13 E., 34 lks. dist.

A Fir tree, 18 in. dia. bears N 3 E., 24 lks. dist.

Surface broken.

Soil 3d rate.

——West on 180th Mile——

Variation 12° East.

42.50 Enter valley, bears SW.

50.50 Creek, 20 lks wide, clear but shallow water, rapid current, stony bottom, course SE.

61.75 A large perpendicular volcanic stone, 175 feet high, about 50 feet at base, 3 chs dist

70.00 Large volcanic boulder, running to a peak, 75 feet high, and 20 feet at base

Variation 15° 30' East

78.00 Top of bluff, bears North and SE.

80.00 Offset from tangent to Parallel, to 180th mile corner

Marked stone 6x6x4 -180M- and deposited it, 3½ feet in earth Built conical mound of earth, 4 feet high, over same Dug pits 10 lks East and West from base of mound, 2 feet square and 18 in deep Set sand stone 24x8x6, projecting 8 in above mound, marked on the North, South, West and East sides C - -NM- -1868- -180M- respectfully

No natural objects near

Surface mountainous, covered with fallen timber and an undergrowth of small aspen timber

Soil 3d rate

—West on 181st Mile—

Variation 15° East

72.80 Top of perpendicular cliff, about 30 feet high, bears SE.

Variation (on mountain side) 12° East

80.00 Place for 181st mile corner, impossible to establish it

Surface broken, covered with fallen and an undergrowth of apsen timber

Soil 3d rate

Sept. 13th Measuring chain compared with standard and found correct

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—West on 182nd Mile—

Variation 15° East

1.00 To perpendicular cliff, 100 feet high To avoid cliff and perpendicular bluff, I offset South 4 chs, then West 20 chs, then offset back to line

20.00 Leave 2nd rate Pine, Fir and Aspen timber, bears NW.

40.50 Rio los Pinos, 60 lks wide, clear water, 12 in deep, rapid current, stony bottom, course S 8 E.

48.70 To astronomical monument No 6 which is represented by a sand stone, 5 feet long, 20 in wide and 10 in thick, set 2 feet in earth, marked on the North, South, West and East sides "Colorado", "New Mexico", "1868", "37 N.", respectfully. Built mound of cobble stones; 6 feet at base.

CHAINS

3 feet high and 4½ feet at top. Dug pits on the North, South, East and West sides.

Observations for Asimuth, at Astronomical Monument No. 6, on d Ursae, Minoris, Dec. 86° 36′ 44″ 1 RA 18h 14m 49.46s, and 51 Cephei Dec. 89° 14′ 33″ 5 Sept. 15th, 1868. Chronometer fast at mean noon, on Solar time 5h 49m 26s with a losing rate of 16s per day.

	h	m	s
Chronometer time of observations of d Ursae Minoris, upper transit	12.	22.	00
Chro. time of observations, 51 Cephei	12.	44.	36
Chronometer interval		22.	36
Chronometer rate			0.27
Reduction to Sidereal time			3.73
Sidereal interval	22	40.	00
Interval between upper and lower transit	22.	36.	5
			3.5

Computation

∴ 3s 5 = 52″ 5

Cos. d 86° 36′ 44″	=	8.77300
Cos. d 87° 14′ 33″	=	8.68366
Sec. ∠ 37	=	0.09165
Cosec. 6° 09′ 0[illegible]	=	0.96982
1.74		0.24429

——West from Astronomical monument No. 6 on 182nd Mile——

Variation 15° East.

0.30 Leave valley, bears N 25 W.

11.80 Top of mountain ridge, bears South

16.80 Leave fallen timber and enter prairie valley, course N N E.

17.80 Dry bed of creek, stony bottom, course N N E.

31.30 Offset from tangent to Parallel, to 182nd mile corner. Marked stone 10x6x3 -182M- and deposited 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x8x8, projecting 6-in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -182M- respectively. No natural objects near.

CHAINS

Surface mountainous, covered with fallen timber
Soil 3d rate

——West on 183d Mile——

Variation 13° 50′ East

39.00 Branch of the Rio los Pinos, 20 lks. wide, clear water, rapid current, stony bottom, general course NE.

52.50 Canon, 200 lks. wide, bears SE.

80.00 Offset from tangent to Parallel, to 183d mile corner.
Marked stone 8x4x3 -183M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 18x10x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -183M- respectively.
No natural objects near.
Surface mountainous, covered with fallen timber and Aspen brush.
Soil 2nd rate.

——West on 184th Mile——

Variation 13° 50′ East.

71.00 Top of ridge, descending into canon, bears North.

79.70 Canon, 600 feet deep, bears N N E.

80.00 Offset from tangent to Parallel, to 184th mile corner.
Marked stone 12x7x3 -184M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x14x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -184M- respectively.
From which point
Valley of the Los Pinos, bears North, 30 chs. dist.
Surface mountainous.
Soil 3rd. rate.

——West on 185th Mile——

Variation 13° 50′ East.

0.30 Creek, 12 lks. wide, clear water, rapid current, rocky bottom, course N N E.

1.00 Leave canon, bears N N E, and ascend steep mountain side.

9.00 Top of bluff, bears N N E.

26.00 Small spring branch, a little south of line, course E N E and E S E.

CHAINS

80.00 Offset from tangent to Parallel, to 185th mile corner. Marked stone 10x8x3 -185M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 16x10x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -185M- respectively. From which point
A Fir tree, 16 in. dia. bears S 58 W., 11 lks. dist.
A spruce tree, 8 in. dia bears N 58 E. 7 lks. dist.
Surface broken, covered with fallen timber, aspen brush and a few fir and spruce trees.
Soil 3d rate.
Sept. 16th. Measuring chain compared with standard and found correct.

——West on 186th Mile——

Variation 13° 55′ East.

3.00 Creek, 2 lks. wide, clear water, rapid current, course North.

9.40 Point of mountain, bears N 78 W.
Hay stack mound on snowy range, bears N 60¼ W.
High point on same, bears N 53 W.
Offset on same, bears N 47½ W.
High Point, bears N 32½ W.

61.50 Leave heavy fallen timber and enter Prairie valley, bears North.

74.50 Creek, 20 lks. wide, clear water, rapid current, rocky bottom, course N N E.

76.00 Indian trail, bears S S W.

80.00 Offset from tangent to Parallel, to 186th mile corner. Marked stone 12x6x7 -186M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 16x12x10, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -186M- respectively. From which point
A Spruce tree, 18 in. dia., bears S 37 E., 27 lks. dist.
No other tree near.
Small Peak, bears N 70 W, about 20 chs. dist.
Small Peak, bears N 15 W., about 15 chs. dist.
High Point, bears N 30 E, about 1¾ miles dist.
High Point, bears N 58 E, about 2 miles dist.
High Point bears S 4 E, about 1 mile dist.

CHAINS

Point of mountain ridge bears N 54 W, 34' M dist.
Surface mountainous, 10 chs. from corner, the line runs along a side hill, that descends to the North, for 20 chs., covered with thick fallen Fir and Spruce timber.
Soil 2nd.

——West on 187th Mile——

Variation 13° 56' East.

17.00 Leave valley and enter fallen timber, bears NE.
48.00 Commence to descend into valley, bears SW and NE.
72.00 Leave fallen timber, bears S S W.
75.20 Creek, 8 lks. wide, clear water, rapid current, rocky bottom, course N N E.
80.00 Offset from tangent to Parallel, to 187th mile corner.
Marked stone 6x5x4 -187M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -187M- respectively.
No natural objects near.
Surface mountainous, covered with fallen timber.
Soil 2nd rate.

——West on 188th Mile——

Variation 13° 50' East.

8.00 Leave valley and enter fallen timber, bears South.
25.00 Top of mountain ridge, 600 feet above level of valley, bears S S W. Variation 15° East.
28.50 Mountain Peak bears N 75 W.
Offset of mountain ridge, bears N 70 W.
Hay stack Peak's, bears N 60 W—N 35 W.
Mountain ridge bears N 42 W.
Offset of mountain ridge—bears N 36 W-N 26 W-N 12 W.
Mountain ridge, bears N 70 W.
72.50 Creek, 6 lks. wide, clear water, rapid current, bears N N W.
80.00 Offset from tangent to Parallel to 188th mile corner.
Marked stone 8x6x3 -188M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -188M- respectively.
From which point a

CHAINS

Timbered hill, bears S 27 W-S 47 W.
Prairie Peak, bears S 65 W-S 72 W.
Volcanic stone boulder, 15x10x10 feet, on volcanic ledge, or Peak, bears N 67 W.
Volcanic ledge, on side hill, bears N 57 W.
West Point of mountain ridge, or ledge of rock, bears N 7 E.
A Spruce tree, 12 in. dia., bears N 8 W, 190 lks. dist.
No other tree near.
Surface mountainous.
Soil 2nd rate.
Sept. 17th. Measuring chain compared with standard and found correct.

——West on 189th Mile——

Variation 14° East.

5.50 Enter valley, bears E N E.
6.60 Creek, 10 lks. wide, clear water, rapid current, course E N E.
15.00 Leave valley, bears E N E.
17.80 Volcanic boulder, bears N 63 E, 16 lks. dist.
Rock on end of ridge, bears N 10 W., 12 chs. dist.
57.50 Top of mountain ridge, commence to descend side of mountain, 800 feet high, bears NE and S 80 W.
61.50 Perpendicular cliff of volcanic stone, 100 feet high, about 50 lks. South of line.
80.00 Place for 189th mile corner on side of bluff, impossible to establish corner.
No natural objects near.
Surface mountainous.
Soil 3d rate.

——West on 190th Mile——

Variation 14° East.

10.50 Enter Prairie valley, covered with a fine growth of grass, bears NW.
15.84 High volcanic Peaks bears S 42 E = S 20 E = S 7 E= S 15 W = N 63 W.
Point of mountain ridge, bears N 55 W.
Point of volcanic rock's bears N 45 W — N 33 W.
Slide of mountain top, having the appearance of white sand, bears N 28 W, about 2½ miles dist.
51.00 Creek, 5 lks. wide, clear wate[illegible]rapid current, course North.
51.25 Large volcanic boulder, 6 lks. South.

CHAINS

50.50 Creek, 8 lks. North, course North.

65.00 Top of bluff, descend into valley.

80.00 Offset from tangent to Parallel, to 190th mile corner. Marked stone 6x4x4 -190M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr. and 18 in. deep. Set sand stone 16x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -190M- respectively.
No natural objects near.
Surface mostly gently rolling and descending to the NW.
Soil 1st rate.
Sept. 18th. Measuring chain compared with standard and found correct.

——West on 191st Mile——

Variation 14° East.

11.50 East fork of the Rio Charmer, 150 lks. wide, clear water, rapid current, stony bottom, course W S W.

13.25 Leave Rio Charmer, course W S W, general course South. High banks.

31.38 Indian trail, bears N W.

53.25 Creek, 15 lks. wide, clear water, 2 in deep rapid current, stony bottom, course S.

60.00 Creek, 10 lks. wide, high banks, clear water, rapid current, course South.

80.00 Offset from tangent to Parallel, to 191st mile corner. Marked stone 8x6x3 -19M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x10x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -191M- respectively.
From which
A volcanic ledge of rock, bears N 28° W — N 38 E.
Volcanic rock on ridge, bears S 68 E — S 60 E.
Volcanic rock on ridge, bears S 45 E.
Mountain ridge having the appearance of white sand, bears S 10 E.
Valley to the South.
Surface broken.
Soil 2nd rate.

CHAINS

——West on 192nd Mile——

Variation 13° East.

9.30 Stone, 20x10x6 feet, formed of Volcanic gravel.

15.00 Mountain slide, bears South.

30.00 Leave same at Point of mountain.
Volcanic rock North, 200 feet dist.
Variation 15° East.

35.00 Enter 2nd rate Pine and Fir timber, bears North.

61.00 Creek, 10 lks. wide, clear water, 3 in. deep, rapid current, course SW.

80.00 Offset from tangent to Parallel to 192nd M temporary corner.
Surface mountainous.
Soil 2nd rate.

——West on 193d Mile——

Variation 13° East.

23.50 Leave Pine and Fir timber and enter valley, bears SW.

78.75 Creek, 15 lks. wide, muddy water, rapid current, stony bottom, course S S W.

80.00 Offset from tangent to Parallel, to 193d mile temporary corner.
Surface gently rolling.
Soil 2nd rate.
Sept. 18th. Measuring chain compared with standard and found correct.

——West on 194th Mile——

Variation 14° East.

16.50 Creek, 15 lks. wide, clear water, rapid current, stony bottom, course S S W.

23.00 Bed of Rio Charmer stony bottom course North, and

24.00 to water, 70 lks. wide, clear water, 24 in. deep, rapid current, stony bottom, course South, general course S S E. Banks on East side low, on West side 6 ft. high.

28.00 Leave valley and enter fallen timber, bears South.

48.50 Enter valley, bears SE.

50.00 Creek, 15 lks. wide clear water, 3 in. deep rapid current, stony bottom, course SE.
Enter 2nd rate Fir and Aspen timber, bears SE.

68.00 Creek, 10 lks. wide, clear water, rapid current, stony bottom, course E S E.

80.00 Offset from tangent to Parallel, to 194th mile temporary corner.

CHAINS

Surface, after leaving valley, mountainous, covered with 2nd rate Pine and Fir timber.
Soil 2nd rate.

——West on 195th Mile——

Variation 14° East.

16.50 Enter dead timber, bears South.

35.00 Creek 6 lks. wide, clear water, rapid current, course E S E. and enter 2nd rate Fir and Aspen timber, bears E S E.

68.50 Creek 3 lks. wide, clear water, rapid current, course E N E and enter dead and fallen timber.

80.00 Offset from tangent to Parallel to 195th M temporary corner on top of mountain ridge.
Surface mountainous, covered with 1st rate Pine and Fir timber.
Soil 1st rate.

——West on 196th Mile——

Variation 13° 55′ East.

26.00 Enter swamp, covered with willow brush, and fallen timber, bears NW.

37.50 Leave swamp, bears SE and NW.

79.00 Enter 2nd rate Pine and Fir timber, bears N and S.

80.00 Offset from tangent to Parallel, to 196th mile temporary corner.
Surface broken, mostly covered with fallen timber.
Soil 2nd rate.

——West on 197th Mile——

Variation 13° 55′ East.

60.00 Leave 1st rate Pine and Fir timber and enter aspen brush, on side mountain, bearing to the South.

80.00 Place for 197th mile temporary corner, impossible to establish it.
Surface mountainous.
Soil 2nd rate.
Sept. 19th. Measuring chain compared with standard and found correct.

——West on 198th Mile——

Variation 14° East.

4.00 Foot of hill, to ravine, 50 lks. south.

11.00 Top of high bluff, bears North and South.

20.00 Enter 2nd rate Aspen timber, bears SE.

CHAINS

37.50 Enter valley, bears South.
40.00 Creek, 15 lks. wide, clear water, 4 in. deep, rapid current, stony bottom, course South, thick willow brush along banks.
42.00 Leave valley and enter Aspen brush, bears SE.
70.00 Enter 2nd rate fir timber, bears NE.
80.00 Offset from tangent to Parallel to 198th mi. corner temporary.
Surface mountainous, mostly covered with aspen timber.
Soil 2nd rate.

——West on 199th Mile——

Variation 14° East.
10.50 Creek, 15 lks. wide, clear water, rapid current, course S S W.
34.25 Top of mountain ridge.
Stone wall on west side bears North.
57.50 Leave 2nd rate Aspen timber, bears South.
80.00 Offset from tangent to Parallel, to 199th mile, temporary corner.
Surface mountainous.
Soil 2nd rate.

——West on 200th Mile——

Variation 14° East.
1.00 Small stream in bottom of canon, bears South.
80.00 Offset from tangent to Parallel to 200th mile temporary corner.
Surface broken.
Soil 2nd rate.

——West on 201st Mile——

Variation 14° East.
3.10 Creek, 10 lks. wide, clear water, 6 in. deep, rapid current, course SE.
40.00 Greatest depression of valley. A creek 5 lks. wide, clear but sluggish water, 10 in. deep, course SE.
Several small spring branches near.
59.20 Indian trail, bears SE.
80.00 Offset from tangent to Parallel to 201st mile temporary corner.
Surface rolling.
Soil 2nd rate.

CHAINS

—West on 202d Mile—

Variation 14 East

- 18.50 Creek, 8 lks wide, clear water, rapid current, stony bottom, course NE., willow brush on banks
- 22.50 Enter 2nd rate Pine Fir and Aspen timber, bears N and S.
- 44.00 Creek, 2 lks wide, clear water, course North
- 80.00 Offset from tangent to Parallel to 202nd mile temporary corner

Surface broken, covered with 1st rate Aspen and fir timber, and an undergrowth of Oak and Aspen brush

Soil 2nd rate

Sept. 20th. Measuring chain compared with standard and found correct

—West on 203d Mile—

Variation 14 East.

- 14.00 Summit of the divide of the Atlantic and Pacific waters, bears N N E.
- 68.50 Creek, 2 lks. wide, clear but shallow water, gentle current, course N N W.
- 80.00 Offset from tangent to Parallel to 203 mile temporary corner

Surface broken on side of mountain and descend to the North.

Soil 2d rate.

—West on 204th Mile—

Variation 14 East.

- 1.00 Pond of water, or sink hole, 150 lks. wide, muddy water, average depth, 10 in.
- 42.00 Leave 2nd rate Pine and Aspen timber, and enter Oak brush, bears North.
- 80.00 Offset from tangent to Parallel to 204th mile temporary corner.

Surface broken about ½, covered with Aspen and Fir timber, balance Oak brush

Soil 2nd rate.

—West on 205th Mile—

Variation 14 East.

- 60.00 Leave Oak brush and enter Prairie valley, bears W S W
- 79.75 Creek, 2 lks. wide, clear water, swift current, gravelly bottom, course W S W

CHAINS

80.00 Offset from tangent to Parallel to 205th mile temporary corner.
Surface broken.
Soil 2nd rate.

——West on 206th Mile——

Variation 14° East.

5.00 Leave valley, bears W S W.
60.00 Enter 2nd rate Pine timber, bears North and South.
79.00 Enter valley, bears S S W.
80.00 Offset from tangent to Parallel to 206th mile temporary corner.
Surface broken.
Soil 2nd rate.

——West on 207th Mile——

Variation 13° 59' East.

1.00 Leave valley and enter scattering 2nd rate Pine timber, bears S S W.
25.00 Leave timber and enter valley, bears NW.
29.50 Creek, 3 lks. wide, clear water, rapid current, course W S W.
37.50 Leave valley and enter scattering oak brush, bears W N W.
58.00 Leave scattering oak brush, and enter valley, bears W N W.
80.00 Offset from tangent to Parallel to 207th mile temporary corner.
Surface broken.
Soil 2nd rate.
Sept. 27th. Measuring chain compared with standard and found correct.

——West on 208th Mile——

Variation 14° East.

4.00 Creek, 10 lks. wide, clear water, rapid current, stony bottom, course W N W.
4.40 Trail leading from Tierra Amarilla, N. M. to Pagosa Springs, Colo. bears W N W.
9.00 Leave valley, and enter 2nd rate scattering Pine timber and Oak brush, bears W N W.
37.00 Leave same, bears W N W. Enter valley bears NW.
Creek, 3 lks. wide, clear water, rapid current, course W N W.
46.00 Enter Oak brush, and scattering 2nd rate Pine timber, bears W N W.

CHAINS

55.00 Leave scattering Fire timber, and enter Oak brush, bears W N W.

80.00 Offset from tangent to Parallel to 208th mile temporary corner.
Surface broken.
Soil 2nd rate.

——West on 209th Mile——

Variation 14° East.

77.00 Top of mountain ridge, bears N and S.

80.00 Offset from tangent to Parallel, to 209th mile temporary corner, in thick Aspen and Oak brush.
Soil 2nd rate.
Surface mountainous, covered with Oak, Aspen and willow brush.

——West on 210th Mile——

Variation 14° East.

6.00 A deep canon. Set flag on opposite bank of canon and thence North 8 chs, flag bears S 71° 34′ W. Therefore we have the statement

Sin. 18° 26′	=	9.499063
Sin. 71° 34′	=	9.977125
Log. 8 chs.	=	0.903090
24 chs.		1.380232

30.00 Leave canon, 600 feet deep, and nearly perpendicular sides, bears S S W.

38.00 Canon, bears South, 500 feet deep. I set flag on opposite bluff, thence North 10 chs. flag S 69 W, therefore we have the statement

Sin 21°	=	9.554329
Sin. 69°	=	9.970154
Log. 10 chs	=	1.000000
chs. dist. 26.05 lks.		1.415823

64.05 Leave canon, almost perpendicular sides, of sand stone, bears South.

70.00 Canon, 500 feet deep, nearly perpendicular sides. Set flag on opposite bank, thence North 6 chs. flag bears S 74 W., 8 chs., flag bears S 69° 05′ W. Therefore we have the statement

CHAINS.

Sin. 20° 55′	= 9.552080	Sin. 16°	= 9.440338
Sin. 69°05′	= 9.970394	Sin. 74°	= 9.982842
Log. 8 chs.	= 0.903090	Log. 6 chs.	= 0.778151
chs.		chs.	
20.93 lks.	1.320840	20.94 lks.	1.320655

Mean 20.93½ lks.

80.00 Place for 210th mile corner in canon, impossible to establish corner.

Surface mountainous, covered with thick Oak and Aspen Brush.

Soil 2nd rate.

Sept. 28th. Measuring chain compared with standard and found correct.

——West on 211th Mile——

Variation 14° East.

10.93 Leave canon, bears South, and enter 2nd rate Pine timber.

80.00 Offset from tangent to Parallel to 211th mile temporary corner.

Surface mountainous.

Soil 3d rate.

——West on 212th Mile——

Variation 14° East.

70.00 Canon, 1000 feet deep, bears NW. nearly perpendicular sides, of sand stone.*

Sin. 14°22′	= 9.394673	Sin. 19°46′	= 9.528458
Sin. 75°38′	= 9.986202	Sin. 70°16′	= 9.973716
Log. 10 chs.	= 1.000000	Log. 14 chs.	= 1.146128
39.04 chs.	1.591539	39.03 chs.	1.591386

Mean 39.03½ lks.

A stream of water, about 20 ks. wide, runs in canon, clear water, rapid current, stony bottom, course NW.

80.00 Place for 212th mile corner on side of bluff, impossible to establish corner.

*Set flag on west side of canon, thence North 10 chs. flag bears S 75° 38 W. 14 chs. S. 70° 16 W.

——East on 206th Mile——

Surface mountainous.

Soil 3d rate.

CHAINS

——West on 213th Mile——

Variation 14° East.

20.04 Leave canon, 1000 feet deep. Bluffs on each side, nearly perpendicular, and composed of sand stone. A stream of clear rapid water in canon, course NW.

80.00 Offset from tangent to Parallel, to 213th mile temporary corner.

Surface mountainous.

Soil 3d rate.

——West on 214th Mile——

Variation 14° East.

31.00 Enter valley, bears N N W.

53.00 Creek, 10 lks. wide, clear water, 4 in. deep, rapid current, gravelly bottom, course N N W.

55.50 Trail, bears N N W.

55.75 Set temporary witness corner, a sand stone 24 x 8 x 8-

70.00 Enter wet bottom, covered with willow brush, bears North.

80.00 Place for 214th mile corner in wet bottom subject to overflow to the depth of 7 feet. Impossible to establish corner.

Surface broken.

Soil 2nd rate.

——West on 215th Mile——

Variation 14° East.

4.00 Rio Navajoe, clear water, 18 in. deep, swift current, stony bottom, low banks, course S W.

8.00 Over Rio Navajoe, course S W.

20.00 Leave wet bottom, bears South.

24.75 Indian trail, bears S S W.

25.30 Astronomical monument No. 7. Offset from tangent to Parallel to a point 75 lks. South of astronomical monument No. 7 on Parallel. This monument is identified by a Pine charred post, 14 feet long, 12 in. square, set in a monument of stone, 5 feet high. Post marked on the North, South, West and East sides—"Colorado" "New Mexico" "1868" "37NL" respectufllly

Sept. 20th. Measuring chain compared with standard and found correct.

I corrected the line back East to 191st mile corner, a distance of 23 315/1000 miles making a correction of 3 22/100 lks. per mile.

CHAINS

——East on 214th Mile——

Variation 13° East.

80.00 Place for 214th mile corner in wet bottom, subject to overflow, to the depth of 7 feet, impossible to establish corner.

24.25 Set witness corner, built conical mound of stone. Set sand stone 24 x 8 x 8, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- which is 73 lks. North of temporary witness corner.

——East on 213th Mile——

Variation 13° 59′ East.

80.00 Moved temporary corner 70 68/100 lks. North and set true corner. Marked stone 5 x 4 x 3 -213M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -213M- respectively.

No natural objects near.

——East on 212th Mile——

Variation 13 59′ East.

80.00 Place for 212th mile corner. Impossible to establish it.

No natural objects near.

——East on 211th Mile——

Variation 13° 59′ East.

80.00 Moved temporary corner 64 24/100 lks. North and set true corner. Marked stone 5 x 3 x 3 -211M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long, 6 in. square, beveled at top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -211M- respectively.

No natural objects near.

——East on 210th Mile——

Variation 13° 59′ East.

80.00 Place for 210th mile corner in canon but impossible to establish it.

No natural objects near.

CHAINS

——East on 209th Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 57 80/100 lks. North and set true corner in thick Aspen and Oak brush. Marked stone 6 x 6 x 3 -209M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -209M- respectively. No natural objects near.

——East on 208th Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 54 58/100 lks. North and set true corner. Marked stone 10 x 6 x 3 -208M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Oak post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -208M- respectively.

From which

Mountain Peak, bears N 26 W, about 30 M dist.
Point of mountain ridge, bears N 4 E.
Mountain Peak bears N 28 E - N 70 E - S 45 W.

——East on 207th Mile——

Variation 12° 58' East.

80.00 Moved temporary corner 51 36/100 lks. North and set true corner. Marked stone 5 x 5 x 4 -207M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred pine post, 8 feet long and 6 in. square, beveled at the top, three feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -207M- respectively.

From which point a

Timbered Peak, bears S 55 W.
Perpendicular ledge of rock, bears S 25 W. 30 chs. dist.

CHAINS

——East on 206th Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 48 14/100 lks. North and set true corner. Marked stone 6 x 5 x 3 -206M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep.
Charred Pine post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -206M- respectively.

From which point
A Pine tree, 30 in. dia. bears N 15 E. 250 lks. dist.
A Pine tree, 30 in. dia. bears S 72 W. 237 lks. dist.

——East on 205th Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 44 92/100 lks. North and set true corner. Marked stone 6 x 4 x 3 -205M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred oak post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -205M- respectively.

From which point a
High point, bears N 55 E. 5 chs. dist.
High Point, bears North, 20 chs. dist.
High Point, bears South 25 chs. dist.

——East on 204th Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 41 70/100 lks. North and set true corner. Marked stone 3 x 3 x 2 -204M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in deep. Set sand stone 30 x 16 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -204M- respectively.

From which point
Timbered Peak, bears South, 2 miles dist.
Point of perpendicular rock, bears S 58 W.
Conical Peak, bears N 3 W. 20 chs. dist.

CHAINS

——East on 203d Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 38.48/100 lks. North and set true corner. Marked stone 8 x 6 x 3 -203M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -203M- respectively.

From which point

An aspen tree, 12 in. dia. bears N 5 W., 57 lks. dist.
An aspen tree, 8 in. dia. bears S 5 W., 25 lks. dist.

——East on 202nd Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 35.26/100 lks. North and set true corner. Marked stone 5 x 5 x 4 -202M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Aspen post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -202M- respectively.

From which

An aspen tree, 16 in. dia. bears N 5 W 17 lks. dist.
An aspen tree, 12 in. dia. bears S 7 E. 25 lks. dist.

——East on 201st Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 32.04/100 lks. North and set true corner. Marked stone 10 x 6 x 6 -201M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred pine post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -201M- respectively.

From which point a

Conical point, on East of Sierra Navajoe, bears N 40 E.
Highest point on North of Sierra Navajoe, bears N 24 W.

CHAINS

Most Northern point of Southern ridge of Sierra Navajoe bears S 66 E.

——East on 200th Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 28 82/100 lks. North and set true corner. Marked stone 12 x 5 x 4 -200M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -200M- respectively.

No natural objects near.

——East on 199th Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 25 60/100 lks. North and set true corner. Marked stone 4 x 4 x 3 -199M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Aspen post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -199M- respectively.

From which point

An aspen tree, 10 in. dia., bears S 55 W. 27 lks. dist.
An aspen tree, 8 in. dia., bears S 45 W. 23 lks. dist.

——East on 198th Mile——

Variation 13° 59' East.

80.00 Moved temporary corner 22 38/100 lks. North and set true corner. Marked stone 6 x 5 x 5 -198M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir post 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -198M- respectively.

From which

A Fir tree, 12 in. dia. bears S 40 E. 9 lks. dist.

CHAINS

A Fir tree, 10 in. dia. bears N 15 W. 6 lks. dist.

——East on 197th Mile——

Variation 13° 54′ East.

80.00 Place for 197th mile corner, on mountain side, impossible to establish it.

——East on 196th Mile——

Variation 13° 54′ East.

80.00 Moved temporary corner 15 94/100 lks. North and set true corner. Marked stone 4 x 4 x 4 -196M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep.
Set charred Fir post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -196M- respectively.

From which point

A Fir tree, 10 in. dia. bears S 25 W. 15 lks. dist.
A Fir tree, 15 in. dia., bears N 25 E. 23 lks. dist.
Summit of mountain ridge, bears South.

——East on 195th Mile——

Variation 13° 59′ East.

80.00 Moved temporary corner 12 72/100 lks. North, and set true corner, on top of mountain ridge. Marked stone 6 x 5 x 4 -195M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -195M- respectively.
No natural objects near.

——East on 194th Mile——

Variation 13° 59′ East.

80.00 Moved temporary corner 9 50/100 lks. North and set true corner. Marked stone 4 x 3 x 3 -194M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir post, 8 feet long and 6 in. square, beveled at top, 3

CHAINS

feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -194M- respectively.

From which point
A Fir tree, 16 in. dia. bears N. 20 W, 46 lks. dist.
A Fir tree, 20 in. dia. bears S 38 E, 28 lks. dist.

——East on 193d Mile——

Variation 12° 59' East.

80.00 Moved temporary corner 6 28/100 lks. North and set true corner. Marked stone 8 x 5 x 4 -193M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir Post, 8 feet long, and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -193M- respectively.

From which point a
High Peak, bears N 60 W.
Timbered Peak, bears North.
Mountain slide, bears N 21 E., ¼ mile dist.
Volcanic ledge, bears N 32 E. 1 mile dist.
Point of mountain ridge, bears N. 52 E.
Mountain Peak, bears N 75 E.
Mountain Ridge, bears S 30 E.
Mountain Peak, East of valley, bears S 3 W.
Valley, bears S 10 W.
Point of Ridge, bears S 18 W.

——East on 192nd Mile——

Variation 12° 59' East.

80.00 Moved temporary corner 3 06/100 lks. North and set true corner in dead timber. Marked stone 10 x 6 x 3 -192M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post 8 feet long and 6 in. square, beveled at to 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -192M- respectively.
No natural objects near.

CHAINS

Observations for asimuth at Astronomical Monument No. 7, on d Ursae Minoris Dec 86° 36′ 44″.3 RA 18h 14m 44s and 51 Cephei Dec. 87° 14′.02″.5 RA 6h 37m 56s.5 Sept. 30th, 1868. Chronometer fast at mean noon, on Solar time 5m 46s.21 with a loosing rate of 22s per day.

	h	m	s
Lower transit of d Ursae Minoris Oct. 1st AM—Chronometer time	11.	18.	43.
Upper transit of 51 Cephei	11.	41.	58.5
Chronometer intervals		23.	15.5
Chronometer rate			0.3
Reduction, to Sidereal time			3.8
Sidereal interval		23.	19.6
Interval between upper and lower transit		23.	12.5
			7.1

Computation

$\Delta 7^s.1 = 106''.5$	Log. = 2.02735	
Cos. d 86° 36′ 44″	= 8.77300	Magnetic
Cos. d 87° 14′ 25″	= 8.68366	Variation
Sec. ϕ 37°	= 0.09765	14° East.
Cosec. 6° 09′ 13″	= 0.06982	
East of true asimuth 3s.56	0.55148	

——West from Astronomical Monument No. 7 on 215th Mile——

Variation 14° East.

1.70 Foot of ridge, bears South.

9.70 Top of ridge, bears S S W.

17.70 Foot of Ridge and enter valley, bears South.

19.70 Creek, 20 lks. wide, clear water, rapid current, course South. Willow brush along banks and beaver dams every few chains.

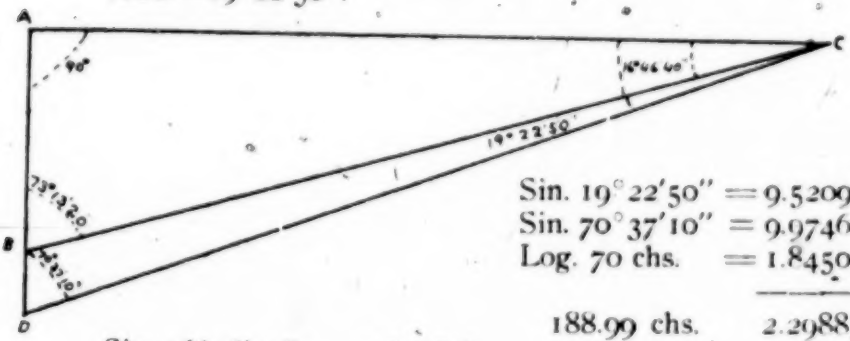
26.20 Indian trail, bears South.

32.70 Leave valley and enter 2nd rate Pine timber, bears S S E.

CHAINS

54.70 Offset from tangent to Parallel to 215th mile temporary corner.

Surface mostly level Prairie. Soil 2nd rate. It being impossible to measure the line up the mountain ridge, West of the 115th mile corner, I set flag on ridge, and formed the triangles ABC - ADC from a point 35 chs. West of 214th mile corner, measured the angles A=90° : B=73° 13'.20" ; 4D=70°37'10", therefore the angles ACB=16.46.40 ACD=19°22'50".



Sin. 19°22'50" = 9.520930
Sin. 70°37'10" = 9.974666
Log. 70 chs. = 1.845098

188.99 chs. 2.298834

Sin. 16°46'40" = 9.460387
Sin. 73°13'20" = 9.981108
Log. 60 chs. = 1.778151

199.01 chs. 2.298872

Large 198.99)
Small 199.01) chs. chs.
Mean of computations 199.00

Therefore at 74 chs. on 117th mile, top of Myer ridge, nearly level on top.

Variation 14° East.

——West on 217th Mile——

Variation 14° East.

80.00 Offset from tangent to Parallel, to 217th mile, temporary corner.

Surface broken.

Oct. 2nd. Measuring chain compared with standard and found correct.

——West on 218th Mile——

Variation 13° 56' East.

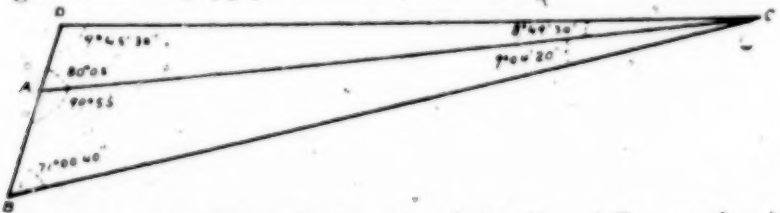
14.30 High perpendicular cliff. The country West of this point is cut up by deep canons and high ridges, making it impossible to measure line with chain and this ridge being the only point that I could get a base that could be measured with sufficient accuracy for computing the distance, I found the triangle ABC - ADC and BCD, the point C is a lone

CHAINS

Pine tree, standing near the West end of a high mountain ridge, and cannot be mistaken for any other. The above named

M.

tree is 5 North of the line, or N 89 55 W. I run N 10 E 147 chs. 50 lks. formed the the triangle ABC measured angles A=90°55'. B=71°00'40". I formed the triangle ADC, the measured angles A=80°05', D=94°53'30", hence we have the angles BACB=9°04'20", ACD=5°49'30" and angle DCB=14°53'50", AD=90 chs. and BD=23.75 chs.



In order to determine the length of the line AC= we have the following statements:

Sin. 9°04'20"=	9.197775	In triangle ADC we have	
Sin. 71°00'40"=	9.975699		
Log. 147.50 chs=	2.168792	Sin. 5°49'30"=	9.0064249
	2.946716	Sin. 94°05'30"=	9.9988916
		Log. 90 chs.	1.9542425
			2.9467092

In triangle DBC

Angle C=14°53'50"=	9.4100783
Angle B=71°00'40"=	9.9756991
Side BD. 237.5 chs.=	2.3756636
	2.9412844

SIDE DC 873.54 chs.
Point D)
West of)
Point A) 15.63 chs.

889.17

Difference between measurement on line AC and D C 4.65

884.52

-MEAN-

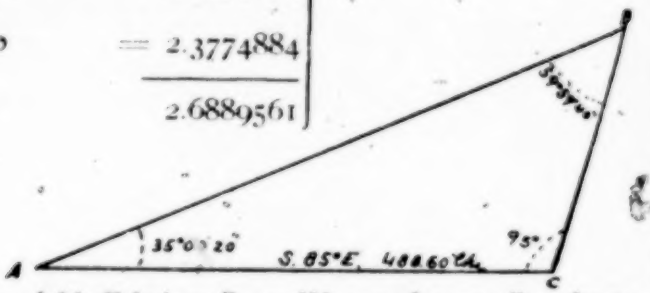
1st comp'n	884.54
2nd do.	884.52
3rd do.	884.52
	884.52.6

CHAINS

M chs. lks.

Point C or tree on bluff is 11. 04. 52 6/10 West of point A, in triangle, or 18 chs. 82 6/10 lks. on 129th mile. Tangent 147 lks. South of line, Parallel is 28 lks. North of tree, or point C. The North point of ridge is 50 lks. North. The South point 50 lks. South of point D and B in triangle. Perpendicular bluffs on each side. In order to determine the point where the boundary line crosses the Rio Navajoe, from point on the bluff, on the West side of the stream I took the following bearings of the North and South points of the mountain ridge, where the triangulation was made from a point on bluff on the South point of the ridge, bearing S 85° E. North point bears N 69° 59′ 40″ E. Therefore I have the triangle ABC, with the angles A=25°00′20″, B=59°59′40″, and C=95°.

Sin. 25°00′20″	=	9.6260386
Sin. 59°59′40″	=	9.9375063
chs.		
Log. 238.50	=	2.3774884
488.60 chs.		2.6889561



South point of bluff being S 10 W. 90 chs. 50 lks. from point 14. chs. 30 lks. West of 217th mile corner, is 89 chs. 12 lks. South of line, and 30 chs. 02 lks. further west than 217th mile corner, S 85 E, 488 chs. 60 lks. + 42 Lat 61 chs. 468 DEP. 75 chs. + 30.02=516.77 lks. West of the 217th mile corner or 36 chs. 77 lks. further West than the place for the 223d mile corner, 89 chs. 12 lks. - 42 chs. 61 lks. = 46 chs. 51 lks. - 28 lks. for distance North of the Parallel = 46.23 lks. South of Parallel, thence N 2 E 46.54 chs. to a point on Parallel 35 chs. 14 lks. West of 223d mile. Bluff of the Rio Navajoe, 100 lks. East thence West on 224 mile.

Variation 13° 56′ East.

35.70 Indian trail, bears North.

35.80 Set a temporary witness stone monument.

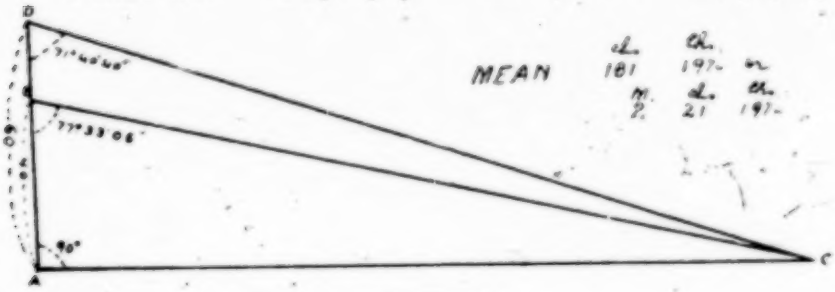
39.50 Rio Navajoe, 100 lks. wide, 18 in. deep, stony bottom, rapid current, course NW.

41.00 Foot of nearly perpendicular cliff, 4 feet high, bears NW.

CHAINS

It being impossible to measure further with chain on line on account of the number of deep canons, and abrupt ridges. Tree on line on bluff, 19 lks. North of Parallel. I here built temporary mound of earth and stone. I found it impossible to measure line with chain from this point to valley, on account of the precipitous character of the ridges and deep canons. I, from a point on ridge, on tagent, caused a flag to be set on a small elevation, near the valley, and at that point, I formed the triangle ABC and ADC, measured angles A=90 B. 77.33.05, D=71.40.40, hence the angle ACB=12.26.55; ADC 18.19.20, measured sides AB=40, AD=60, hence we have

Sin. 12°26'55"	= 9.333576	Sin. 18°19'20"	= 9.497428
Sin. 77°33'	= 9.989672	Sin. 71°40'40"	= 9.977405
Log. 40 chs.	= 1.602060	Log. 60 chs.	= 1.778151
181.20 chs.	2.258156	181.19 chs.	2.258128



MEAN

——West on 231st Mile——

Variation 14° East.

43.00 Enter San Juan valley, bears S W.

78.00 Bend in Rio San Juan, clear water, rapid current, stony bottom, course SW.

Offset from tangent to Parallel and set temporary witness corner. Offset South 5 chs. in order to measure line, thence West 20 chs. offset back to line, on left bank of river.

Surface except valley, mountainous, cut up by deep canons, covered with scrub Pine timber.

Soil 3d rate.

——West on 232nd Mile——

Variation 14° East.

20.00 Leave bend in Rio San Juan, clear water, rapid current, stony bottom, course, W S W

CHAINS

63.00 Bend of Rio San Juan, average depth about 2 feet, course W S W.
71.50 Sandbar, in river.
73.50 Leave sand bar and enter water, course W N W.
75.00 Sand bar, bears W N W.
80.00 Place for temporary 232nd mile corner on sand bar, and impractical establish it. Subject to inundation, to the depth of 10 feet. Bottom also subject to inundation, to the depth of 6 feet.

Surface on South side of river mountainous, on the North side, valley is about ¼ of a mile wide.
Soil in valley 2nd rate.

——West on 233d Mile——

Variation 14° East.

31.75 Leave sand bar, and bed of Rio San Juan, course W N W.
79.00 Canon, bears NE.
79.50 Dry bed of Creek, 5 lks. wide, stony bottom, course NE.
80.00 Offset from tangent to Parallel to 223d mile temporary corner, in canon.

Surface broken.
Soil 3d rate.

——West on 234th Mile——

Variation 13° East.

60.00 Top of bluff, descending into canon, bears N N E.
72.00 Dry bed of creek, stony bottom, course N N E.
80.00 Place for 234th mile corner, on side of bluff, impossible to establish it.

Surface mountainous, covered with scrub Pine timber.
Soil 3d rate.

——West on 235th Mile——

Variation 14° East.

12.00 Top of bluff, bears North.
21.00 Peak on mountain ridge, bears N 37¾ W.
28.50 Dry bed of creek, sandy bottom, course North.
80.00 Offset from tangent to Parallel to 235th mile temporary corner.

Surface mountainous and stony, covered with scattering scrub Pine timber.
Soil 3d rate.

CHAINS

Oct. 7th. Measuring chain compared with standard and found correct.

It being impossible to measure on line with chain on account of the broken condition of the surface, I offset North, forming a right angle with tangent, 68 chs. thence West on Parallel with tangent 4 M 40 chs, offset South at right angles to tangent, 68 chs. to tangent.
Surface on offset broken, also along side of mountain, covered with scrub, Pine and Cedar timber.
Soil 3d rate.

——West on 240th Mile——

Variation 14° East.

61.00 Leave mountains and enter San Juan Valley bears S W.
A gradual descent from bluff to river.

80.00 Offset from tangent to Parallel, to 240th mile, temporary corner.
Surface except bottom, mountainous, covered with scrub cedar and pine timber and Oak brush.
Soil 2nd rate.

——West on 241st Mile——

Variation 14° East.

68.00 Enter scattering 2nd rate cottonwood timber, bears S W.
74.00 Rio San Juan, course S S W.
78.50 Leave Rio San Juan, clear water, about 30 in. deep, rapid current, stony bottom, low banks, course S S W.
80.00 Place for 241st mile corner, on side of bluff, impossible to establish it.
Surface on east side of river, a gradual descent to it.
Soil 2nd rate.

——West on 242nd Mile——

Variation 14° East.

4.00 Top of bluff bears S W.
9.00 Indian trail, bears S S W.
10.00 Descend into valley, bears South.
21.70 Offset from tangent to Parallel, to a point 410 lks. South of Astronomical Monument No. 8 which is represented by a granite stone 6 feet long x 10 x 11 in. marked on the North, South, West and East sides "Colorado" "New Mexico" "1868" "37NL" respectively.
Dug pits 2 feet square and 18 in. deep on the North, South,

CHAINS

West and East sides.

I therefore make a correction of 15 8/10 lks. per mile North. Thence

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——East on 242nd Mile——

Variation 13° 53′ East.

21.70 Place for 241st mile corner on side of bluff, impossible to establish it.

——East on 241st Mile——

Variation 13° 53′ East.

80.00 Moved temporary corner 3.90 2/10 chs. North and set true corner to 240th mile. Marked stone 5 x 5 x 4 -240M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 16 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -240M- respectively.

No natural objects near.

——East on 240th Mile——

Variation 13° 53′ East.

Impossible to establish the 239th - 238 - 237 - and 236 mile corners.

Offset from 235th mile temporary corner 3.14 8/10 chs. North, and set true corner. Set a sand stone 5 x 4 x 2 marked on the North, South, West and East sides -C- -NM- -1868- -235M- respectfully. Dug pits 10 lks. East and West from stone, 2 feet square and 18 in. deep.

From which point

A sand stone 7 x 6 x 3 feet bears S 45 E, 9 lks. dist.

——East on 234th Mile——

Variation 12° 53′ East.

80.00 Moved temporary corner 2.99 chs. North and set true corner to 233d mile. Marked stone 4 x 3 x 2 —and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 8 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -234M- respectively.

CHAINS

No natural objects near.

——East on 233d Mile——

Variation 12° 53′ East.

80.00 Place for 232nd mile corner on sand bar in Rio San Juan, and impossible to establish it.

From which point

Point of ridge bears N 20 W, 3 miles dist.
Point of ridge, bears S 5 E, 40 chs. dist.

——East on 232nd Mile——

Variation 13° 53′ East.

80.00 Place for corner in river.

82.00 Moved temporary witness corner 252 9/10 lks. North on 232nd mile, and set true corner. Built conical mound of earth and stone, 4 feet high. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 16 x 10, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868-. No natural objects near.

——East on 231st Mile——

Variation 13° 53 E.

Impossible to establish the 230 - 229 - 228 - 227 - 226 - and 225th mile corners.

——East on 229th Mile——

Variation 13° 49′ East.

80.00 Moved temporary witness corner on 224th mile, 2 chs. 19 lks. North, and set true witness corner. Built conical mound of earth, 4 feet high. Set sand stone 30 x 12 x 4 marked on the North -C- South -NM- East -37NL- West -1868-.

The above corner is on a high ridge, about 1½ miles South of Rio San Juan

From which point

A Pine tree, 20 in. dia. bears South 2.11 lks.
No other tree near.

——From witness corner 35.80 lks. West on 224th Mile——

Variation 13° 59′ East.

Moved temporary witness corner 1.29 lks. North, and set true witness corner. Built conical mound of earth, 4 feet

CHAINS

high. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 20 x 10, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -37NL-.

——East on 224th Mile——

Variation 13° 49' East.

Impossible to establish 223 - 222 - 221 and 220 mile corners.

Moved 217th mile temporary corner, 40 9/10 lks. North and set true corner. Marked stone 5 x 4 x 4 -217M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 23 x 10 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -217M- respectively.

No natural objects near.

Impossible to establish 216th mile corner.

Moved 215th mile temporary corner 10 5/10 lks. North, and set true corner. Marked stone 6 x 5 x 3 -215M- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -215M-.

From which point

A Pine tree, 20 in. dia., bears N 15 W., 40 lks. dist.

A Pine tree, 16 in. dia. bears S 10 E, 25 lks. dist.

Observations for Asimuth, Oct. 10th A.M. at Astronomical Monument No. 9 on d Ursae Minoris RA 18. 14. 32.2 Dec. 86° 36' 44" and 51 Cephei RA 6. 37. 46 Dec. 87° 14' 03".5. Chronometer fast at mean noon, on Solar time 5. 46. 21, with a loosing rate of 2.0 per day.

h m s

h m s

h m s

s

CHAINS

	h	m	s
Chro'n time of Obs'n of d Ursae Minoris, AM lower transit	10.	44.	25.
Chro'n time of Obs. of 51 Cephei, upper transit	10.	07.	40
Chronometer interval		23.	15
Chronometer rate			0.3
Reduction to Sidereal time			3.8
		23.	19.1
		23.	07
			12

$\Delta 12 = 18''.0$ Log

Cos.d 86°36'44"	=	8.77300	Va. 14° East.
Cos.d 87°14'03"	=	8.68366	
Sec. 37°	=	0.09765	
Cosec. 6°09'	=	0.96982	
Error 6"0		0.77940	

——West from Astronomical Monument No. 8
21.70 lks. West on 242nd Mile——

Variation 14° East.

426.00 Dry bed of Creek, 10 lks. wide, high banks, stony bottom, Course S°S E.

31.00 Top of Hill, or ridge, bears S°S E, and enter scrub pinion Pine and Cedar timber, bears S S E.

58.00 Leave timber, and enter sage brush Prairie bears South.

80.00 Offset from tangent to Parallel, to 242nd mile corner. Marked stone 5 x 5 x 4 -242M- and deposited it 3½ feet in earth. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -242M- respectively.

No natural objects near.

Surface level, except 1st 30 chs.

Soil 2nd rate.

CHAINS

——West on 243d Mile——

Variation 14° East.

74.50 Dry bed of Creek, 50 lks. wide, high banks, gravelly bottom, course South.

80.00 Offset from tangent to Parallel to 243d mile corner. Marked stone 4 x 4 3 -243M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred cedar post, 8 feet long, and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -243M- respectively.

From which point a
Conical Peak, bears N 7 E.
High Point, on mountain ridge bears N 58 E.
A large tree, on conical peak, bears S 45 E.
Point of ridge, bears South.
Point of Ridge, bears S 40 W, 1½ miles dist.
Surface gently rolling, covered with sage brush.
Soil 2nd rate, gravelly.

——West on 244th Mile——

Variation 14° 02' East.

36.50 Dry bed of Creek, high banks, sand and gravelly bottom, course S S E.

67.25 Indian trail, bears NW.

80.00 Offset from tangent to Parallel, to 244th mile corner. Marked stone 10 x 4 x 4 -244M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred cedar post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -244M- respectively.

From which point, a
Point of Ridge, bears N 79 W.
Point of ridge, bears N 12 W., 10 miles dist.
Conical Peak, bears N 13 E.
Mountain Peak, bears N 36 E, 35 miles dist.
Mountain Peak, bears N 82 E, 45 miles dist.
Point of mountain ridge, bears S 54 E, 12 M dist.
Surface gently rolling, covered with sage brush.

CHAINS

Soil 2nd rate.

——West on 245th Mile——

Variation 14° 03′ East.

80.00 Offset from tangent to Parallel to 245th mile corner. Marked stone 8 x 6 x 3 -245M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- South -245M-.

No natural objects near.

Surface gently rolling.

Soil 2nd rate.

——West on 246th Mile——

Variation 14° 03′ East.

80.00 Offset from tangent to Parallel, to 246th mile corner. Marked stone 6 x 4 x 3 -246M- and deposited it 3½ feet in ground. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -246M-.

No natural objects near.

Surface gently rolling.

Soil 2nd rate.

——West on 247th Mile——

Variation 14° 03′ East.

36.50 Enter scattering scrub Pine and Cedar timber, bears South.

58.00 Top of ridge, 400 feet above valley, bears NW.

80.00 Offset from tangent to Parallel, to 247th mile corner. Marked stone 6 x 4 x 3 -247M and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 40 x 10 x 4, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -247M-.

No natural objects near.

Surface 1st half, level 2nd half broken.

Soil 2nd rate.

CHAINS

——West on 248th Mile——

Variation 14° 03′ East.

14.00 Descend into valley, 150 feet deep.

47.00 Top of bluff, on west side of valley, bears NE.

74.00 Leave scrub Pine and cedar timber, bears North.

80.00 Offset from tangent to Parallel, to 248th mile corner. Marked stone 6 x 5 x 3 -248M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -248M-.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 249th Mile——

Variation 14° 03′ East.

7.00 Enter scattering pinion, Pine and Cedar timber, bears NE and SW.

80.00 Offset from tangent to Parallel, to 249th mile corner. Marked stone 5 x 5 x 3 -249M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 10 x 12 projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East 249M-.
No natural objects near.
Surface mountainous, covered with scrub Pipe timber.
Soil 3d rate.
Oct. 10th. Measuring chain compared with standard and found correct.

——West on 250th Mile——

Variation 14° 03′ East.

8.00 Perpendicular bluff, bears SW.

23.50 Point of perpendicular sand stone bluff, about 1200 feet above valley, and 40 feet perpendicular.

58.00 Leave scattering pinion Pine and Cedar timber and enter valley of the los Pinos, bear North.

80.00 Offset from tangent to Parallel to 250th mile corner. Marked stone 5 x 5 x 4 -250M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over

CHAINS

same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone, 30 x 8 x 6, projecting 8 in. above mound, marked on the North -C- South -XM- West -1868- East 250M-.

From which point

Point of bluff, bears N 17 W.
Conical Peak bears S 22 W.
Saddle Peak, bears N 80 W.
Surface broken except valley, which is broken.
Soil in valley 2nd rate.
Balance 3d rate.

——West on 251st Mile——

Variation 14° 03′ East.

30.50 Dry bed of Creek, 40 lks wide, rocky bottom, course S S E.
59.00 Enter valley, bears S S E.
75.80 Rio los Pinos 100 lks. wide, clear water, about 18 in. deep, rapit current, stony bottom; banks on East side high on West side-low and stony, Course S S E.
79.40 Top of bluff on west side of river, bears S S E.
80.00 Offset from tangent to Parallel, to 251st mile corner. Marked a stone 8 x 6 x 4 -251M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 38 x 12 x 5, projecting 8 in. above mound, marked on the North -C- South -XM- West -1868- East -251M-.

From which point a

Conical mound, bears N 72 W.
Snowy peak, bears N 3 W.
Conical peak, on mountain, bears N 7 E. 30 M dist.
Conical peak, on mountain bears N 17 E.
Conical peak, bears S 32 E. 1 mile dist.
Surface rolling.
Soil 2nd rate.

——West on 252nd Mile——

Variation 14° 03′ East.

13.00 Leave sage brush prairie, bears South.
15.00 Enter scattering 2nd rate scrub, Pine and Cedar timber with thick undergrowth of sage, oak and other brush, bears South and ascend hill.
80.00 Offset from tangent to Parallel, to 252nd mile corner. Marked stone 12 x 6 x 4. -252M- and deposited it 3½ feet

CHAINS

in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26 x 8 x 7, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -252M-.
No natural objects near.
Surface mountainous and stony, covered with a thick undergrowth of scrub Pine and Cedar brush. Soil 3d rate.
Oct. 11th. Measuring chain compared with standard and found correct.

——West on 253d Mile——

Variation 14° 03′ East.

80.00 Offset from tangent to Parallel, to 253d mile corner. Marked stone 10 x 6 x 3 -253M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 12 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -253M- respectively.

From which point a
½ conical peak, bears N 4 W, 25 miles dist.
Surface mountainous, covered with scrub Pine and Cedar timber.
Soil 3d rate.

——West on 254th Mile——

Variation 14° 03′ East.

59.00 Canon, 50 lks. wide, 800 feet deep, bears NW.

80.00 Offset from tangent to Parallel to 254th mile corner. Marked stone 16 x 6 x 4 -254M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 10 x 8, projecting 8 in. above mound, marked on the North, South, East and West sides -C- -NM- -254M- -1868- respectively.
No natural objects near.
Surface mountainous covered with thick brush.
Soil 3d rate.

——West on 255th Mile——

Variation 14° 03′ East.

67.00 Perpendicular sand stone bluff, 70 feet high, bears NW.

78.00 Enter valley, bears NE.

CHAINS

80.00 Offset from tangent to Parallel to 255th mile corner. Marked stone 6 x 4 x 3 -255M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -255M- respectively.
No natural objects near.
Surface mountainous, covered with scrub, pinion Pine and Cedar brush.
Soil 3d rate.

——West on 256th Mile——

Variation 14° 03' East.

77.50 Creek, 15 lks. wide, very little water, course S S W.

80.00 Offset from tangent to Parallel to 256th mile corner. Marked stone 4 x 3 x 2 -256M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set sand stone 30 x 12 x 4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -256M- respectively.
No natural objects near.
Surface rolling, mostly covered with sage brush.
Soil 3d rate.

——West on 257th Mile——

Variation 14° 03' East.

2.00 Enter scrub Pine and Cedar timber and leave valley, bears SW.

65.00 Creek, 10 lks. wide, very little water, high banks, gravelly bottom, course S S W.

80.00 Offset from tangent to Parallel, to 257th mile corner. Marked stone 8 x 6 x 4 -257M- and deposited it 3½ feet in earth. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 10 x 10 projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -257M-.
No natural objects near.
Surface broken and stony covered with scrub cedar, pine and oak timber and sage brush.
Soil 3d rate.

CHAINS

Oct. 12th Measuring chain compared with standard and found correct

——West on 258th Mile——

Variation 14° 03′ East.

6.00 Top of sand stone bluff, bears South

10.50 Creek, 20 lks. wide, very little water, high banks, gravelly bottom, course South

16.00 Top of sand stone bluff, on West side of Creek, bears South.

80.00 Offset from tangent to Parallel to 258th mile corner. Marked stone 6 x 5 x 4 -258M- and deposited it 3½ feet in earth Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep Set sand stone 28 x 12 x 12, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -258M- respectively. No natural objects near.

Surface broken and stony, covered with scrub Pine and timber

Soil 3d rate.

——West on 259th Mile——

Variation 14° 03′ East.

1.00 Perpendicular sand stone bluff, 15 feet high, bears SSW

3.00 Creek, 8 lks. wide, clear water, rapid current, sandy bottom, course E S E.

25.00 Leave valley, about 3 chs. wide, bears SE and East.

80.00 Offset from tangent to Parallel to 259th mile corner. A sand stone 6 x 5 x 4 feet, projecting 2 feet above ground, marked on the North, South, West and East sides -C- -NM- -1868- -259M- and on top + respectively.

No mound, no pits and no natural objects near.

Surface broken

Soil 2nd rate.

——West on 260th Mile——

Variation 14° 03′ East.

80.00 Offset from tangent to Parallel to 260th mile corner. Marked stone 6 x 6 x 3 -260M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 10 x 5, projecting 8 in. above mound, marked on the North, South,

CHAINS

West and East sides -C- -NM- -1868- -260M- respectively.
No natural objects near
Surface broken, covered with scrub pinion Pine and Cedar brush
Soil 3d rate

——West on 261st Mile——

Variation 14° 03' East

80.00 Offset from tangent to Parallel to 261st mile corner. Marked stone 8 x 6 x 4 -261M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set chafred Cedar post, 8 feet long, and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -261M- respectively.
No natural objects near
Surface broken, covered with pinion Pine and cedar timber.
Soil 3d rate.

——West on 262nd Mile——

Variation 14° 04' East

38.00 Valley, 1 chain wide, bears S. S. W.

80.00 Offset from tangent to Parallel to 262nd mile corner, which is identified by a sand stone 8 feet square, projecting 2 feet above earth, marked on the North, South, West and East sides -C- -NM- -1868- -262M- respectively.
No mounds, No pits, No natural objects near.
Surface broken, covered with pinion Pine timber and brush.
Soil 3d rate.
Oct. 12th. Measuring chain compared with standard and found correct.

——West on 263 Mile——

Variation 14° 04' East.

80.00 Offset from tangent to Parallel, to 263d mile corner. Marked stone 8 x 6 x 3 -263M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 15 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -263M- respectively.
No natural objects near.

CHAINS

Surface broken.
Soil 3d rate.

——West on 264th Mile——

Variation 14° 03' East.

20.00 Top of high ridge and enter canon, bears N N E.

37.00 Leave canon, bears N W.

80.00 Offset from tangent to Parallel, to 264th mile corner Marked stone 6 x 4 x 4 -264M- and deposited at 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks East and West from base of mound 2 feet square and 18 in. deep. Set sand stone 40 x 12 x 8 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -264M- respectively. Soil 3d rate.

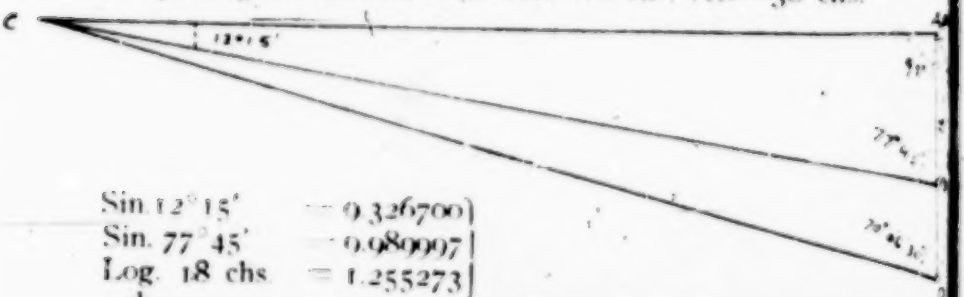
No natural objects near.

Surface mountainous, covered with pinion pine and Cedar brush.

——West on 265th Mile——

Variation 14° 03' East.

65.00 To perpendicular bluff, 50 feet high, bears South. A deep canon, directly West. It being impossible to measure with chain on line, I set flag in valley on line and one on top of bluff, and from flag in valley, I found the triangle ABC and ADC, with measured angles A=90, B=77.45, D=70.06.30, measured sides AB=18 chs. AD=30 chs.



Sin. 12° 15'	= 9.326700
Sin. 77° 45'	= 0.989997
Log. 18 chs	= 1.255273
chs.	
82.90 lks	1.918570
chs.	
Mean 82.90½ lks.	

Sin. 19° 53' 30"	= 9.531780
Sin. 70° 06' 30"	= 0.973284
Log. 30 chs.	= 1.477121
Chs.	
82.91 lks.	1.918616

Impossible to establish 265th mile corner on account of nearly perpendicular bluff.

Oct. 13th. Measuring chain compared with standard and found correct.

CHAINS

——West on 266th Mile——

Variation 14° 03′ East.

In order to determine the Point, where the line crossed the Rio los Animas East from point A or 67.00 chs. West on 266th mile.

2.00 Indian trail bears South.

9.00 Enter low bottom, bears S S W.

16.00 Rio los Animas, 3 chs. wide, about 2½ feet deep, clear water, rapid current, about 6 miles per hour, stony bottom, banks on East side low, course S S E, general course South.

67.75 Offset from tangent 4.10 chs. to Parallel at Astronomical Monument No. 9 which is represented by a sand stone 2½x3 feet, projecting 3 feet above earth, marked on the North "Colorado" South "New Mexico" West "1868" East "37 XL" and over top of stone there is a deep cross, cut with a chisel. Dug pits on the North, South, East and West sides.

From which

Conical Peak bears N 13½ E. about 1½ M dist.

Point of perpendicular sand stone bluff down Rio Los Animas, bears S 7 E, 3 M dist.

Animas valley bears S 2 W.

Observation for Asimuth Oct. 15th A. M. on d Ursae Minoris R.A. 18h 14m 49.8s DEC 86° 36′ 44″ and 51 Cephei R.A. 6h 38m 10.3s Dec. 87° 14′ 08″.7. Chronometer fast at mean noon on Solar time 5h 45m 39s with a loosing rate of 1.16 per day.

	h	m	s
Chron. time of Obs. 'n of d Ursae Minoris AM lower transit	10	24	32
Chron. time of Obs. 'n of 51 Cephei. upper transit	10	47	49
Chronometer interval		23	17
Chronometer rate			0.3
Reduction to Sidereal time			3.8
Sidereal interval		20	21.1

CHAINS

Interval of time between upper and lower transit) 23. 29.5 / 8.4

—Computation—

s

$\Delta = 8.$ $4 \times 15 = 126$ Log.

—	= 2.10037	
Cos. d 86° 36′ 44″	= 8.77300	
Cos. d 87° 14′ 08″	= 8.68366	Va. 14° 04′ East.
Sec. ø 37°	= 0.09765	
Cosec. 6°09′	= 0.96982	
Error of Asimuth 4″.2 East.	0.62450	

West from Astronomical monument No. 9 on 266th mile, which is 67.75 lks. West of place for 265th mile corner. Va. 14° 04′ East.

1.00 Bluff, bears North and South.

6.00 Top of bluff, bears South.

13.25 Offset from tangent to Parallel, to 266th mile corner. Marked stone 6 x 5 x 4 -266M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 8 x 4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -266M- respectively.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 267th Mile——

Variation 14° 04′ East.

20.00 Foot of high ridge, bears South.

45.00 Top of ridge, bears S S E.

80.00 Offset from tangent to Parallel to 267th mile corner. Marked stone 6 x 4 x 4, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 12 x 8, projecting 8 in. about mound, marked on the North -C- South -NM- West -1868- East -267M-.
No natural objects near.
Surface broken.
Soil 3d rate.

CHAINS

——West on 268th Mile——

Variation 14° 04' East.

38.50 Dry bed of Creek, 20 lks. wide, sandy bottom, course NNW'. A perpendicular sand stone rock, a little South of line, from underneath flows a spring of pure water, which sinks again in the sand.

49.00 Perpendicular sand stone bluff, bears South.

80.00 Offset from tangent to Parallel, to 268th mile corner. Marked stone 5 x 5 x 4 -268M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 10 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -268M- respectively. No natural objects near.
Surface broken, covered with scrub cedar and pine timber and oak brush.
Soil 3d rate.
Oct. 14th. Measuring chain compared with standard and found correct.

——West on 269th Mile——

Variation 14° 04' East.

11.00 Top of bluff 50 feet high and leave timber bears South.

20.00 Dry bed of Creek, 20 lks. wide, sandy bottom, course S S E.

48.00 Enter scrub Pine timber, bears South.

80.00 Offset from tangent to Parallel, to 269th mile corner. Marked stone 8 x 4 x 3 -269M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -269M- respectively. No natural objects near.
Surface broken.
Soil 3d rate.

——West on 270th Mile——

Variation 14° 04' East.

30.50 Top of ridge bears South.
Conical Peak, bears N 67.16 W
A ½ conical peak bears N 23 E.

80.00 Offset from tangent to Parallel to 270th mile corner. Marked stone 5 x 5 x 4 -270M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over

CHAINS

same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 16 x 10, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -270M-.
No natural objects near.
Surface broken, covered with scrub Pine and Cedar timber.
Soil 3d rate.

——West on 271st Mile——

Variation 14° 04' East.

80.00 Offset from tangent to Parallel to 271st mile corner. Marked stone 4 x 4 x 3 -271M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 12 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -271M- respectively.
No natural objects near.
Surface broken, covered with scrub pinion Pine and cedar timber and thick Oak and Sage Brush
Soil 3d.

——West on 272nd Mile——

Variation 14° 04' East.

80.00 Offset from tangent to Parallel, to 272nd mile corner. Marked stone 4 x 4 x 3 -272M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 18 x 8 x 3, projecting 6 in. above mound, marked on the North -C- South -NM- West -1868- East -272M- respectfully.
No natural objects near.
Surface broken, covered with scrub pine and Cedar timber.
Soil 3d rate.

——West on 273d Mile——

Variation 14° 04' East.

80.00 Offset, from tangent to Parallel, to 273d mile corner Marked stone 5 x 4 x 4 -273M- and deposited it 3½ feet in earth, Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the

CHAINS

North, South, West and East sides -C- -NM- -1868- -273M- respectively.
No natural objects near.

——West on 274th Mile——

Variation 14° 04′ East.

80.00 Offset from tangent to Parallel to 274th mile corner. Marked stone 5 x 4 x 3 -274M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -274M-.
From which point
West peak of mountain bears N 8 W.
Conical peak, bears N 60 E.
Surface broken, covered with 3d rate, cedar and Pine timber.
Soil 2nd rate.
Oct. 15th. Measuring chain compared with standard and found correct.

——West on 275th Mile——

Variation 14° 04′ East.

39.00 Perpendicular sand stone bluff, about 20 feet high, bears S S E.

80.00 Offset from tangent to Parallel to 275th mile corner, which is represented by a cedar tree, 10 in. dia. barked square etc. marked on the North, South, West and East sides -C- -NM- -1868- 275M respectively.
No natural objects near.
Surface broken, covered with scrub cedar and Pine timber.
Soil 3d rate.

——West on 276th Mile——

Variation 14° 04′ East.

10.00 Leave Cedar and Pine timber and enter sage brush prairie, bears N N W.

80.00 Offset from tangent to Parallel to 276th mile corner. Deposited charred block 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar 8 feet long and 6 in. square, beveled at

CHAINS.

the top, 3 feet in ground, propecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -276M-.
No natural objects near.
Surface gently rolling Prairie.
Soil 3d rate.

——West on 277th Mile——

Variation 14° 04' East.

0.15 Indian trail, bears W S W.

10.00 Enter scattering 3d rate cedar and pine timber, bears W N W.

80.00 Offset from tangent to Parallel, to 277th mile corner. Deposited charred block 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long and in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -277M-.
From which point a
Mountain Peak, bears N 3 W.
Small Peak near Rio la Platte, bears N 60 W.
Surface rolling.
Soil 2nd rate.

——West on 278th Mile——

Variation 14° 04' East.

30.00 Leave scattering 2nd rate Cedar and Pine timber and enter sage brush prairie, bears NNW and SE.

80.00 Offset from tangent to Parallel, to 278th mile corner. Marked stone 6 x 5 x 2 -278M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 12 x 10, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -278M-.
No natural objects near.
Surface broken.
Soil 2d rate.

——West on 279th Mile——

Variation 14° 04' East.

5.00 Top of ridge, bears SW.

CHAINS

41.80 Large sand stone boulder on top of ridge 30 feet square and 10 feet high.

69.10 Indian trail, bears N N E.

80.00 Offset from tangent to Parallel to 279th mile corner. Marked stone 6 x 4 x 4 -279M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 16 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 8 x 8, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -279M-.
No natural objects near.
Surface broken, mostly covered with scrub Pine and Cedar timber.
Soil 3d rate.

——West on 280th Mile——

Variation 14° 04′ East.

12.00 Dry bed of Creek, 50 lks. wide, sandy bed, course W S W. Note: A bed of bituminous coal crops out on each side of Creek about 4 feet thick.

28.00 Top of sand stone bluff, 70 feet high, bears E S E.

35.00 Creek, 40 lks. wide (alkali) about ½ in. deep, sandy bottom, course S S E.

37.00 Leave valley, and ascend hill, bears SE.

80.00 Offset from tangent to Parallel to 280th mile corner, which is identified by a large sand stone, 4 feet square and 18 in. high, marked on the North -C- South -NM- West -1868- East -280M-.
No natural objects near.
Surface broken, covered with scrub cedar and pine timber.
Soil 3d rate.

——West on 281st Mile——

Variation 14° 04′ East.

2.00 Large beds of bituminous coal, from appearance it indicates a vein 30 feet thick, and coal is exposed over a space of about 80 acres.

50.00 Sand stone bluff about 200 feet high bears South.

55.00 Enter valley, bears South.

64.60 Dry bed of Creek, 60 lks. wide, sandy bottom, high banks, course S S E.

73.00 Dry bed of creek, 50 lks. wide, cut into valley about 10 feet, muddy bottom, course SE.

80.00 Offset from tangent to Parallel to 281st mile corner.

CHAINS

Marked stone 6 x 6 x 4 -281M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 12 x 6, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -281M.

From which point a
Point of sand stone bluff, bears N 35 E.
Point of sand stone bluff, bears N 30 E.
Mountains, bears N 5 E.
Surface broken, on the hills nothing but gravel.
Soil 3d rate.
Oct. 16th. Measuring chain compared with standard and found correct.

——West on 282nd Mile——

Variation 14° 04′ East.

80.00 Offset from tangent to Parallel, to 282nd mile corner, on side of hill, which descends to the North. Marked stone 8 x 6 x 3 -282M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 34 x 14 x 12, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -282M-.
No natural objects near.
Surface broken, covered with scrub Pine and cedar timber.
Soil 3d rate.

——West on 283d Mile——

Variation 14° 04′ East.

40.00 Leave scattering Pine and Cedar timber and enter sage brush prairie, bears South.

71.24 Indian trail, bears S S W..

80.00 Offset from tangent to Parallel to 283d mile corner on top of ridge. Marked stone 5 x 5 x 4 -283M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 14 x 10, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -283M-.
No natural objects near.
Surface rolling.
Soil 2nd rate.

CHAINS

——West on 284th Mile——

Variation 14° 04′ East.

10.00 Enter valley, bears South.

19.50 Indian trail, bears South.

27.25 Rio la Platte, 50 lks. wide, clear water, 24 in. deep, rapid current, gravelly and rocky bottom, course South.

65.00 Indian trail, bears South.

66.00 Leave valley, bears South

West Peak, Sierra la Platte, bears N 8½ E.

Snowy Peak, bears N 12.35 E.

Peak, bears N 19¾ E.

½ conical peak, bears N 35 E.

Canon, where trail comes down bears N 13½ E.

Rio la Platte valley, bears S 16½ E.

80.00 Offset from tangent to Parallel, to 284th mile corner. Marked stone 5 x 5 x 2 -284M- and deposited it 3½ feet in earth. Built conical mound of earth; 4 feet high, over same. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North -C- South -NM- West 1868- East -284M-.

No natural objects near.

Surface gently rolling.

Soil 2nd rate.

——West on 285th Mile——

Variation 14° 04′ East.

10.00 Dry bed of Creek, 100 lks. wide, stony bottom, course SE.

16.50 Leave valley, and enter scrub Pine and Cedar timber, bears SE.

80.00 Offset from tangent to Parallel, to 285th mile corner. Marked stone 8 x 6 x 4 -285M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 10 x 8, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -285M-.

No natural objects near.

Surface broken, mostly covered with 3d rate Pine and Cedar timber and sand stone rock.

Soil 3d rate.

——West on 286th Mile——

Variation 14° 04′ East.

CHAINS

60.00 Canon, bears SE. Set flag on opposite side of canon, formed the right angle triangle ABC measured the angles A=90 B=71.28 Side AB= 6 chs.

Sin. 17°32′	= 9.478942
Sin. 71°28′	= 9.979340
Log. 6 chs.	= 0.778151
Distance 18 chs. 96 lks.	1.278549

78.96 Leave canon, bears SE.

80.00 Offset from tangent to Parallel, to 286th mile corner, on point West of canon, 50 feet deep, on a flat sand stone, marked 286M. Built conical mound of stone 4 feet high, over same. Set sand stone 30 x 12 x 10, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -286M-.

No natural objects near.

Surface broken.

Soil 1st half sand stone rock.

2nd half 3d rate.

Oct. 17th. Measuring chain compared with standard and found correct.

——West on 287th Mile——

Variation 14° 04′ East.

30.00 Canon 600 feet deep, bears SE. It being impossible to measure line with chain over canon, I set flag on west side of canon, thence North 3 chs. I formed the triangle ABC with the measured angles A=90 B=59.02. Side AB=3 chs. hence we have the formula.

Sin. 18°26′	= 9.499963
Sin. 71°34′	= 9.977125
Log. 3 chs.	= 0.477121
Distance 9 chs.	0.954283

Perpendicular sand stone bluff on each side.

39.00 Leave canon, bears SE.

80.00 Offset from tangent to Parallel, to 287th mile corner. Marked stone 5 x 4 x 2 -287M- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 10 x 10, projecting 6 in. above mound, marked on

CHAINS

the North -C- South -NM- West -1868- East -287M-.
No natural objects near.
Surface broken
Soil 3d rate.

——West on 288th Mile——

Variation 14° 04′ East.

29.00 Deep canon 200 feet deep, bears S S E.
It being impossible to measure with chain on line, I set flag on West side of canon, on line, thence North 2 chs. flag bears South.

Sin. 26° 34′	=	9.650539
Sin. 63° 26′	=	9.951539
Log. 2 chs.	=	0.301030
4 chs.		0.602030

33.00 Leave canon, bears S S E.

40.00 Canon, 250 feet deep, bears SW.
It being impossible to measure with chain on line, I set flag on West side of canon, thence North 250 lks. flag bears S 63° 26′ E.

Sin. 26° 34′	=	9.650539
Sin. 63° 26′	=	9.951539
Log. 250 lks.	=	0.397940
5 chs.		0.698940

45.00 Leave canon, having nearly perpendicular sand stone sides, bears SW.

80.00 Offset from tangent to Parallel, to 288th mile corner. Marked stone 5 x 4 x 2 -288M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 14 x 8, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -288M-.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 289th Mile——

Variation 14° 05′ East.

13.50 Canon, 600 feet deep, nearly perpendicular sand stone sides, bears SSE. It being impossible to measure distance over canon with chain, I run North, 4 chs. flag bears S. 66° 02′ W.

CHAINS

	Sin. 23 38	= 9.608745
	Sin. 66.02	= 9.960843
	Log. 4 chs.	= 0.602000
	9.00 chs.	0.954158

22.50 Leave canon, bears S S E.

58.00 Canon, bears S S E. It being impossible to measure distance across canon, on line. North 4 chs, flag bears S 67.48 W.

	Sin. 22° 12′	= 9.577309
	Sin. 67° 48′	= 9.966550
	Log. 4 chs.	= 0.602060
	9.82 chs.	0.991301

67.82 Leave canon, 400 feet deep, nearly perpendicular sand stone bluffs, bears S S E.

80.00 Offset from tangent to Parallel, to 289th mile corner. Marked stone 5 x 5 x 4, -289M- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone, 20 x 14 x 10, projecting 6 in. above mound, marked on the North -C- South -NM- West -1868- East -289M-.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 290th Mile——

Variation 14° 05′ East.

35.00 Top of hill bears South. From which point
Hay stack peak, on canon, bears N 17½ W.
A slide on ridge, bears N 4 W.
Conical mountain peak, bears N 53 W.
It being impossible to measure the line with chain, on account of the deep impassible canons, I measure the angle from tangent to the conical mountain peak in the Sierra Latra, which gives an angle of 37° or bears N 53 W. The tangent was commenced at Astronomical Monument No. 9 by turning a right angle from the Asimuth at that point.

M chs. lks.

which is 23. 48. 25 East and the divergency of tangent from Parallel for that distance is 423 lks. South. I then went back to the Rio la Platte, followed it up for a distance of 10 miles; thence West to the Rio los Mancos, and

CHAINS

down that river to the point where the stream leaves the deep canon, and then made observations for Latitude at Astronomical station near the Rio los Mancos, and found from computation, that that point was 184.92 chs. North of the 37th Parallel. I therefore measured S. 4° 58' W. 185 chs. 55 lks. to the Parallel, and established Astronomical Monument No. 10 which is represented by a sand stone boulder 20 feet wide, 10 feet thick and 10 feet above the surface, marked with a + cut with chisel on the top, where the line would cross the same, and on the North "Colorado" South "New Mexico" West "1868" East "37 NL". Dug pits

From which point a

Large sand stone boulder bears N. 29 W. 130 lks. dist. marked "Colorado" "1868".

Large sand stone boulder bears S. 29 E. 130 lks. dist. marked "New Mexico" "1868", 250 lks. foot of high sand stone bluff, 600 feet high, and from a point just West of Astronomical Monument I took a prominent point on bluff, about 7 miles North, for approximate asimuth, in order to detect any movement of the instrument, while making the following observations for asimuth at astronomical monument N. 10, Oct. 25th, 1868.

Chronometer fast at mean noon, on solar time

h	m	s
5	47	54

with a loosing rate of 2ᵖ per day.

	h	m	s
Time of observations by Chronometer on 51 Cephei, upper transit	10	10	40
Chro. time of observations of d Ursae Minoris	10	43	57
Chronometer interval		23	17
Chronometer rate			00.3
Reduction to Sidereal time			03.8
Sidereal interval		23	21.1
Interval between upper and lower transit		23	25.9
			48

CHAINS

		h	m	s	
d Ursae Minoris	RA	18.	14.	33.1	Dec. 86° 36′ 42″.2
		h	m	s	
51 Cephei	RA	6.	38.	09.	Dec. 87° 14′ 03″.5

Δ4M 8 x 15=72 Log	1.85733	
Cos d 86° 36′ 42″	8.77300	
Cos d 87° 14′ 03″	8.68366	Variation 14°07′ East.
Sec. ø 37°	0.09765	
Cosec. 6°09′	0.96982	
West of true asimuth 33 s	0.38146	

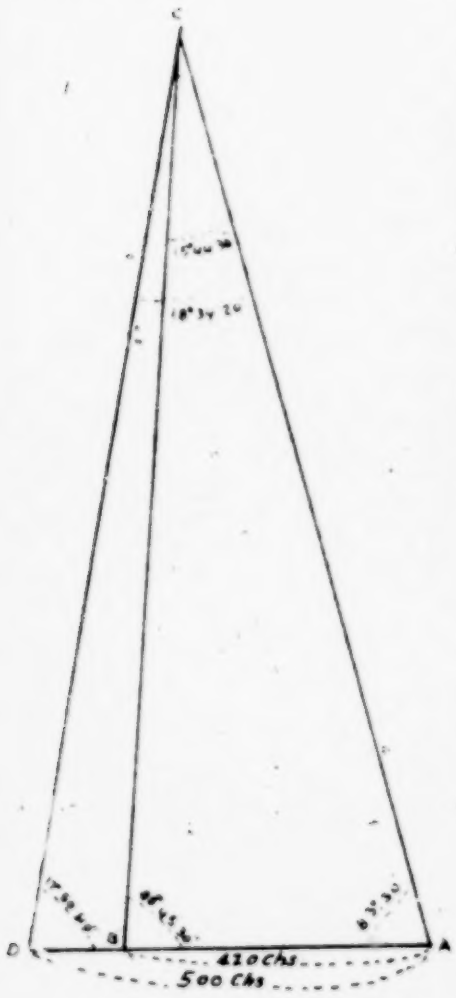
In order to determine the distance—this point which is 191 lks. West of Astronomical Monument No. 10 to the point on tangent, 35 chs. West of the 289th mile corner, where the bearing was taken to the mountain peak in the Sierra Latra, I took the following bearing, and carefully measured the following distances. The same Peak bears N. 6.30 W. i measured West on tangent 420 chs. The above mentioned Peak bears N. 9° 14′ 30″ E, and at 500 chs. the Peak bears N. 12°09′20″ E.

Therefore I have the following triangles ABC — ADC, with the common side AC, and the common measured angle A=83°30′, the measured angle B=80.45.30, D=77.50.20, side AB=420 chs, AD=500 chs. The following statements are made to find the common sides AC, as C is to B, so is AB to AC.

Sin. 15°44′30″	= 9.4334505	Sin. 18.39.20	= 9.5049846
Sin. 80°45′30″	= 9.9943258	Sin. 77.50.40	= 9.9901521
Log. 420 chs	= 2.6288587	Log. 566.58 chs	= 2.7046480
Chs. Lks.		Chs. Lks.	
15.47.87	3.1897340	15.48.16	3.1898190

triangle ABC, side AC=1547 chs. 87 lks.; from triangle ADC, side AC=1548 chs. 16 lks. therefore the mean

CHAINS

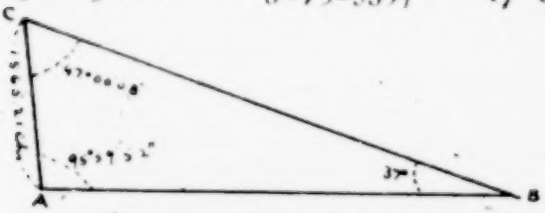


will be 1548 chs. 01 lks. side AC.

In order to compute the distance from the point at A we have to compute the distance, that the tangent commenced at, at the Astronomical Monument No. 9, would be South of the point A in the triangle, and we will assume the distance to be 47 miles and 30 chs. If the tangent had been extended west that distance it would have been South 1705 lks. and if the tangent running at right angles from the point A in triangle a distance of 23 M. 62 chs. it would have been South of the Parallel 4.29 lks. therefore making the two tangents if started from the same point and extended the distance of 23 M 62 chs. a distance of 17 chs. 11 lks, apart, making a change of 38' 08" in course. Therefore if the course had been taken to the mountain Peak, assuming the same tangent that was used in the first bearings, the course would have been 6° 30' — 30' 08" = 5° 59' 52", or N. 5° 59' 52" W. and assuming the point S. 5° 59' 52" E. 17 chs. 20 lks. to the tangent, projecting from the Astronomical Monument No. 9, we have the triangle A. B. C. the point B = 35 chs. on 290th mile. Point C a conical Peak in Sierra Latra Mountains that can be seen from nearly all points as it tapers to a small cone at the top Point A in San Juan valley. Measured angles B = 37°, A = 95° 59' 52". Hence angle C = 47° 00.08, Side AC = 1565 chs. 21 lks. I have the angle B: C: AC:

CHAINS

Sin. 37	= 9.7794630	AB. hence we have the side AB=
Sin. 47 00'08"	= 9.8641432	19.02 chs. 19 lks. = 23 M. 63 chs.
Log. 15.65.21	= 3.1945737	19 lks. + 180 for the departure. West in a course N6W=
1902.19 chs.	= 3.2792539	17 chs. 20 lks. from tangent to Parallel 23 M. 63 chs. 09 lks. - 190 lks. distance West of Astronomical Monument, makes a distance of 23 M. 62 chs. 09 lks. from



the point 35 chs. West of the 289th mile corner, or 23 M. 62 chs. 09 lks. + 289 M. 35 chs. = 313 M. 17 chs. 09 lks. to Astronomical Monument No. 10 in San Juan valley. The country — the subject of this triangulation is very broken, cut up with deep canons, covered with scrub Pine and Cedar timber. The soil is coarse gravel, and no vegetation exists except cactus and soap weed.

——West on 314th Mile——

Variation 14° 07' East.

from Astronomical monument which is 17.08 lks. West of place for 313th mile corner.

62.92 Offset from tangent to Parallel to 314th mile corner. Marked stone 3 x 3 x 3 -314M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -314M- respectively.

No natural objects near.

Surface nearly level Prairie.

Soil 3d rate.

——West on 315th Mile——

Variation 14° East.

80.00 Offset from tangent to Parallel, to 315 mile corner. Marked stone 5 x 5 x 4 -315M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long, and 6 in square, beveled at the top, 3 feet in the

CHAINS

ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -315M-.
No natural objects near.
Surface gently rolling prairie.
Soil 2nd rate.

——West on 316th Mile——

Variation 14° 07′ East.

80.00 Offset from tangent to Parallel to 316th mile corner. Deposited charred block, 6 in. square, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -316M- respectively.
No natural objects near.
Surface gently rolling prairie.
Soil 2nd rate.

——West on 317th Mile——

Variation 14° 06′ East.

20.00 Indian trail bears North.

80.00 Offset from tangent to Parallel to 317th mile corner. Marked sand stone 6 x 4 x 3 -317M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -317M-.
No natural objects near.
Surface gently rolling, Prairie.
Soil 3d rate.

——West on 318th Mile——

Variation 14° 06′ East.

80.00 Offset from tangent to Parallel to 318th mile corner. Marked stone 7 x 5 x 4 -318M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South,

CHAINS

West and East sides -C- -NM- -1868- -318M- respectively.
No natural objects near.
Surface gently rolling prairie.
Soil 3d rate.

——West on 319th Mile——

Variation 14° 06′ East.

74.00 Dry bed of Creek, 75 lks. wide, sandy and gravelly bottom, high banks, course W N W.

80.00 Offset from tangent to Parallel to 319th mile corner. Marked stone 8 x 6 x 3 -319M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set slate stone 36 x 16 x 4, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -319M-.
No natural objects near.
Surface gently rolling.
Soil 3d rate.

——West on 320th Mile——

Variation 14° 06′ East.

80.00 Offset from tangent to Parallel, to 320th mile corner. Marked stone 10 x 6 x 3 -320M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 14 x 6, projecting 8 in. above mound, marked on the North -C- South -NM- West -1868- East -320M-.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 321st Mile——

Variation 14° 06′ East.

80.00 Offset from tangent to Parallel to 321st mile corner. Marked stone 5 x 5 x 4, -321M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square, and 18 in. deep. Set sand stone 30 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -321M- respectively.

CHAINS

No natural objects near.
Surface broken.
Soil 3d rate.

——West on 322nd Mile——

Variation 14° 06′ East.

12.00 I took the following bearings:
Mountains on West side of Rio Colorado bears N 51 W.
West end of mountains bears N 33 W.
Abutment, bears N 59 E.
Perpendicular cliff, bears S 75½ E.
Perpendicular cliff, bears S 72½ E.
Isolated body of rock and earth, having the appearance of a large Cathedral, bears S 7 E.
Conical Peak, on East end of Tunichi mountains bears S 10 W.
Conical Peak, on Tunichi mountains bears S 13½ W.
Highest Point of mountain range, bears S 52½ W.
Conical Peak on Sierra La Platte bears N 37 E.

68.00 Dry bed of Creek, about 50 lks. wide, sandy bottom, course NW.

76.00 Conical mound, about 40 feet high, on line.

80.00 Offset from tangent to Parallel to 322nd mile corner. Marked stone 6 x 4 x 3 -322M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 16 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 10 x 4, projecting 6 in. above mound, marked on the North, South, East and West sides -C- -NM- -1868- -322M- respectively.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 323d Mile——

Variation 14° 07′ East.

80.00 Offset from tangent to Parallel to 323d mile corner. Marked stone 10 x 6 x 3 -323M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in deep. Set sand stone 20 x 14 x 3, projecting 4 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -323M- respectively.

CHAINS

No natural objects near.
Surface broken.
Soil 3d rate.

——West on 324th Mile——

Variation 14° 07′ East.

80.00 Offset from tangent to Parallel, to 324th mile corner. Marked stone 10 x 6 x 3 -324M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 10 x 4, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -324M- respectively.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 325th Mile——

Variation 14° 07′ East.

51.90 Enter valley of the Mancos, subject to overflow, bears SW.

52.50 Rio los Mancos, 70 lks. wide, clear water, 2½ feet deep, gentle current, sandy bottom, high banks, filled with beaver dams, course SW.

57.50 Leave valley, high banks, bears South.

58.50 Top of bluff.
Ruins of an old stone house, about 450 lks. South.

80.00 Offset from tangent to Parallel to 325th mile corner. Marked stone 6 x 5 x 3, -325M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 10 x 6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -325M- respectively.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 326th Mile——

Variation 14° 44′ East.

80.00 Offset from tangent to Parallel, to 326th mile corner. Marked stone 8 x 4 x 3 -326M- and deposited it 3½ feet

CHAINS

in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 14 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -326M- respectively.
No natural objects near.
Surface gently rolling, prairie.
Soil 3d.

——West on 327th Mile——

Variation 14° 07′ East.

25.80 Indian trail, bears South.

39.00 Canon, bears SW and South.
NOTE: A Vein of bituminous coal crops out on each side from 6 to 10 feet in thickness.

47.00 Leave canon, 200 feet deep, bears South.

70.00 Canon, 300 feet deep, bears West.

80.00 Place for 327th mile corner in canon on south side of hill, and impossible to establish corner.
No natural objects near.
Surface broken.
Soil 3d rate.

——West on 328th Mile——

Variation 14° 07′ East.

10.00 Leave canon, bears West and enter San Juan valley, bears W N W.

72.50 Rio San Juan, water little muddy, 3½ feet deep, rapid current, gravelly bottom, banks low, course North. Set flag on opposite bank of river thence North 200 lks. flag bears S. 66° 02′ W. distance over river 4.50 chs.

77.00 Over same, high banks, 10 feet high, course North.

80.00 Offset from tangent to Parallel to 328th mile corner. Marked stone 10 x 6 x 3 -328M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides - -C- -NM- -1868- -328M- respectively.
No natural objects near.
Surface level.
Soil 2nd rate.

CHAINS

——West on 329th Mile——

Variation 14° 04′ East.

80.00 Offset from tangent to Parallel to 329 mile corner. Marked stone 8 x 6 x 4 -329M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 6 x 5, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -229M- respectively.

Surface nearly level.

Soil 2nd rate.

——West on 330th mile——

Variation 14° 07′ East.

2.50 Bend in Rio San Juan, course W S W, muddy water, 5 feet deep, rapid current, high banks.

Sand bar in river, but North of line.

12.40 Over bend in river, high banks course NW.

30.00 Leave valley of San Juan, bears North.

80.00 Offset from tangent to Parallel to 330th mile corner. Marked stone 5 x 3 x 4 -330M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square, and 18 in. deep. Set sand stone 26 x 12 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -330M- respectively.

No natural objects near.

Surface gently rolling, last 50 chs. broken.

Soil 2nd rate.

——West on 331st mile——

Variation 14° 07′ East.

38.40 Dry bed of Creek, sandy bottom, course NW.

50.00 Leave dry bed of Creek, low banks, course NW and West.

80.00 Offset from tangent to Parallel to 331st mile corner. Marked stone 8 x 6 x 4 -331M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 14 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -331M- respectively.

No natural objects near.

Surface broken.

Soil 3d rate.

CHAINS

——West on 332nd Mile——

Variation 14° 07′ East.

60.00 To 109° of West Longitude from Greenwich, according to Astronomical observation and computations made for Longitude near the 37th Parallel of North Latitude, and the observations made for Latitude.

I established Astronomical Monument No. 11 at this point for the corner stone to the Territories of Colorado, New Mexico, Arizona and Utah.

Deposited a sand stone 12 x 10 x 8, 3 feet in earth, engraved with a chisel 109° WL - NM - C - A - 1868. Set a sand stone 5 feet 10 in. in length by 18 x 10 in. 2½ feet in earth, durably engraved with a chisel on the NE "Colorado" -331M- -60 chs- on the SE "New Mexico" "37NL", on the SW "Arizona" "1868", on the NW "Utah" "109 WL".

Built a circular mound of cobble stone, 7 feet at base, 3 feet high. Dug 4 pits on the North, South, East and West sides, 6 feet from base, 2 feet square and 18 in. deep.

The monument is situated on the high land, near a ridge that can be seen for some distance from the East and about 1½ miles from the Rio San Juan.

-BEARINGS-

South point of ridge, bears N 87° W.
North point of Ridge, bears N 05 W.
Highest Peak on Sierra Latra bears N 40½ E.
Lone column of rock on same range, bears N 44 E.
Lone column of rock on same range, East of same bears N 48½ E.

Point of Bluff, on East side of valley, bears N 55 E. about 30 miles dist.
North point of high plateau bears N 82 E.
South point of high plateau, bears S 88½ E.
South point of high ridge, bears S 83¾ E.
Conical peak in Sierra Latra bears S 16½ W.
Conical Peak in Sierra Latra bears S 23 W.

We hereby certify, that we assisted Ehud N. Darling, Surveyor and Astronomer, in surveying the North boundary of New Mexico, which is the 37 Parallel of North Latitude, between the 103° and the 109° of West Longitude from Greenwich. That said line (aforesaid) has been in all respects to the best of our knowledge and belief, well and faithfully surveyed, and the monuments planted

CHAINS

according to the instructions furnished by the Commissioner of the Genl. Land Office.

(Signed) JNO. E. McMANUS
(Signed) NORTH A. HAIGHT } Chainmen
(Signed) ROBERT DARLING
(Signed) SAMUEL MEYERS } Cornermen
(Signed) OTTO MANGOLD
(Signed) JOHN E. JONES
(Signed) JOEL B. DURNALL } Flagmen.

Subscribe and sworn to before me, a Notary Public, for the County of Douglass, City of Lawrence, Kansas, this 4th December, 1868.

(Signed) W. A. Simpson
Notary Public
Douglas, Kansas.

(SEAL)

I, Ehud N. Darling, do solemnly swear, that in pursuance of a contract with the Hon. Jos. S. Wilson, Commissioner of the General Land Office of the U. S. in Washington, bearing date the 22nd day of May, 1868, and in strict conformity to the laws of the United States, and the instructions furnished by the said Commissioner, I have faithfully surveyed the 37th Parallel of North Latitude, so far as it constitutes the North boundary of New Mexico, from the 103° to 109° of West Longitude from Greenwich, and I do further solemnly swear, that the foregoing are the true and original field notes of such survey.

(Signed) Ehud N. Darling
U. S. Surveyor and Astronomer.

Subscribed by said Ehud N. Darling, U. S. Surveyor and Astronomer, and sworn to, before me, a Justice of the Peace for the city and county of Washington, this 13th day of April, 1869.

(Signed) T. C. Connolly, J. P.

CHAINS

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
April 30, 1869.

The foregoing field notes of the survey of the Northern boundary of New Mexico on the 37th Parallel of North Latitude from the 103d to 109th of Longitude west from Greenwich, executed by Ehud N. Darling, Astronomer and Surveyor, under his contract of May 22, 1868, having been examined, are hereby approved.

(Signed) Jos. S. Wilson
Commissioner.

U. S. Surveyor General's Office,
Denver, Colorado.

I hereby certify this to be a correct copy of the Original field notes on file in this office.

Witness my hand and seal this 6th day of February A. D. 1920.

John B. McGauran
(OFFICIAL SEAL) Surveyor General for Colorado.

FILE COPY

Motion and Argument to Strike Out Parts of Answer

Office Supreme Court
OCT 25 1920

IN THE

Supreme Court of the United States

OCTOBER TERM, 1919

ORIGINAL, NO. 25.

STATE OF NEW MEXICO

vs.

STATE OF COLORADO

O. A. LARRAZOLO,
FRANK W. CLANCY,
Counsel for Complainant.

MOTION TO STRIKE OUT PARTS OF ANSWER

In the Supreme Court of the United States

OCTOBER TERM, 1919.

Original, No. 25.

STATE OF NEW MEXICO

vs.

STATE OF COLORADO

Now comes the said complainant and assuming that Rule 33 of the Rules of Practice for Courts of Equity, is applicable to this case, or at least indicates the practice which this court considers preferable, moves the court to strike out from defendant's answer so much of Subdivision III thereof as is as follows:—

> "but defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by either the State of Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm the said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which passed the Senate and the House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with his objections thereto, which Resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter survey, and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is hereto attached and made a part hereof,"

because the same is insufficient as a defense, or any part of

a defense to the allegations of the bill of complaint, and sets out matters which would be entirely irrelevant to any issue which can properly be raised in this case, and is therefore impertinent.

And complainant further moves the court to strike out of said answer all of Subdivision V thereof, except the two last paragraphs of that Subdivision, because the same is insufficient as a defense, or any part of a defense, to the allegations of the bill of complaint, and sets out matters which are entirely irrelevant to any issue which can properly be raised in this case, and is therefore impertinent.

O. A. LARRAZOLO,

FRANK W. CLANCY,

Counsel for Complainant.

ARGUMENT ON MOTION TO STRIKE OUT PARTS OF ANSWER

In the Supreme Court of the United States

ORIGINAL, NO. 25

STATE OF NEW MEXICO

vs.

STATE OF COLORADO

In this case the bill of complaint sets out a line shown by what may be called the Carpenter survey, made by Howard B. Carpenter, under a contract with the United States, dated July 7, 1902, by which he was to re-survey, re-establish and re-mark the boundary line between Colorado and the Territories of New Mexico and Oklahoma, and avers that said line is the true and correct boundary line between Colorado and New Mexico and that Colorado has assumed jurisdiction, as is admitted by the answer, over country south of said line, but the answer denies that the Carpenter line is the true or correct boundary line between the two states although it fails to set up what is the true and correct boundary.

The answer as well as the bill of complaint shows that the 37th parallel of north latitude is properly the boundary line, and the Carpenter survey, according to the instructions given to Carpenter, which begin near the foot of page 3 of the printed bill of complaint, was, in effect, for the purpose of correctly establishing and marking that parallel on the earth's surface.

Subdivision III of the answer, to a portion of which the motion to strike out is directed, after admitting that Carpenter did make a survey which was approved by the Commissioner of the General Land Office, proceeds as follows:—

> "but defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by either the State of Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm the said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which passed the Senate and the House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with objections thereto, which Resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter survey, and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is hereto attached and made a part hereof."

The matter above quoted is attacked by the motion to strike out; and complainant submits to the court that it is of no importance whether the Carpenter survey was ever approved by Congress, the issue properly being whether the survey is correct or not, and no action by Congress could have made it correct if it really were not, nor could any action, or non-action, by Congress have made it incorrect if it were really correct, because Congress was without power to settle the question of a state boundary, jurisdiction as to such a question being vested in this court alone, as is substantially shown in the veto message of President Roosevelt, which appears on page 6 of the printed answer, where it is set out that to establish the true boundary line, an appropriate method would be to invoke by appropriate proceedings the original jurisdiction of this court. The United States might have instituted proceedings to invoke that jurisdiction as is established by U. S. vs. Texas, 143 U. S. 621, but the government

did not do so, and New Mexico as a Territory could not do so, but, as a State it has now invoked the jurisdiction of this court.

Obviously it is equally unimportant that the Carpenter survey has not been recognized by the General Land Office as no action or non-action by that office could change the location of the 37th parallel of latitude on the earth's surface.

The allegation in the answer that the Carpenter survey "failed to become effective in any respect" is not an allegation of fact but a statement of a mere conclusion on the part of the pleader.

There is nothing in the matter quoted from Subdivision III of the answer which can have any effect upon the ascertainment by this court of where the said 37th parallel is upon the earth's surface which is the vital question to be herein determined.

The motion to strike out is also aimed at Subdivision V of answer, excepting the two last paragraphs thereof. The matter objected to is as follows:

> "For further defense to said bill of complaint, this defendant avers that in the Act of Congress, approved March 3rd, 1875, to enable the People of Colorado to form a Constitution and State government, and be admitted into the Union, (18 Statutes at Large, 474), and also by the Constitution adopted by the vote of the People of Colorado, and under which the State of Colorado was admitted into the Union by Proclamation of President Grant, August 1st, 1876, the 37th parallel of North latitude between the 25th and 32nd meridians of longitude West from Washington, was fixed as the southern boundary line of that State; that pursuant to authority of an Act of Congress, approved March 2nd, 1867, (14 Statutes at Large, 466), Ehud N. Darling, United States Surveyor and Astronomer, by the most approved methods of the time, surveyed and established in the year 1868, the 37th parallel of North latitude so far as it constituted the boundary line between the Territories of Colorado and New Mexico, and marked the same upon the earth's surface by mile corners and monuments, a copy of which survey together with the field notes of his work is attached hereto and made a part hereof, which field notes of said survey were examined and approved on the 30th day of April, 1869, by the Honorable Joseph S. Wilson, Commissioner of the General Land Office, as ap-

pears by his certificate to that effect attached to said field notes.

Defendant avers that for more than thirty (30) years, the position of the said Darling line remained undisputed, and the correctness of its technical execution unquestioned, and as so established the said Darling line has been generally recognized and acquiesced in by both of the States herein involved, and accepted by the Federal government, and is now recognized and accepted by the Federal government as the true and subsisting boundary line between Colorado and New Mexico; and by reason of the right and title acquired as hereinbefore set forth, this defendant from the time said boundary was so established in 1868 to the present time, has held lawful and rightful possession of and exercised dominion and sovereignty, and now claims the same, over the territory down to the said southern boundary line as established by the said Darling, and no further; county lines have been formed, towns and settlements have grown up, school districts, voting precincts, land districts and water districts have been created with reference to said line, public officers have been elected, property has been assessed, taxes levied and collected under the authority of the State of Colorado and its courts of both civil and criminal jurisdiction have exercised unquestioned jurisdiction in all places North of said boundary line, and the State of New Mexico has exercised like jurisdiction in all places South of said line. County maps, State maps and maps prepared by the Federal government have for more than forty years last past delimitated said boundary according to said Darling survey, and government post offices have been established as being in Colorado when above said line, and in New Mexico when below said line, and public land surveys on both sides of said line were closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico fixed by reference to said line.

The 37th parallel of North latitude, as established by Howard B. Carpenter, passes through several towns lying wholly within the State of Colorado, according to the boundary as originally surveyed by Darling, and along the entire line there is a material, and in many places, excessive variance between the lines of the two

surveys, and the effect of said Carpenter survey if declared the true boundary line would be to remove a considerable strip of territory which is now within the State of Colorado, according to the Darling survey, and place it in the State of New Mexico.

The stone monument established by Capt. Macomb U. S. A. of the Topographical Bureau in 1858, under direction of the War Department, marking the intersection of the 37th parallel of North Latitude with 103 degrees of West Longitude from Greenwich, adopted as the initial point of the Darling Survey, was designated as the northwest corner of Indian Territory, now State of Oklahoma, in 1874 by John J. Major, U. S. Surveyor and Astronomer, in the survey and marking of the boundary between Indian Territory and Colorado Territory. The line attempted to be established by said Carpenter passed 93 lks. south of said Macomb monument and departed from the boundary lines established by both Darling and Major, and said Corpenter obliterated the marks upon said Macomb monument, theretofore and since hitherto recognized as the corner upon the south line of Colorado and comon to the States of New Mexico and Oklahoma, and attempted to relocate said common corner at a point about two miles easterly from said long established and accepted Macomb monument.

The said Carpenter survey consisted of a new fixation of the 37th parallel of North latitude independent of the line established by Darling in 1868, and not only failed of confirmation by Congress, but the Federal government up to the present time has declined to recognize the said Carpenter survey as the true boundary line between the said two states, and on the cortrary has accepted and still accepts the said Darling survey as the true and correct boundary line between said two states."

It will be seen that while the answer sets up the making of a survey of the line in 1868 by a person named Darling, which was approved by the Commissioner of the General Land Office in 1869, yet it does not anywhere allege that the Darling survey was correct, although there is an averment of its correctness in defendant's cross-bill. The averment that the position of the Darling line for more than 30 years remained undisputed and the correctness of its technical execution unquestioned and that it has been generally recognized by both states and accepted by the federal government as the

true boundary line between Colorado and New Mexico, and the allegations as to exercise of sovereignty in accordance therewith by Colorado and New Mexico, and as to county, state and United States maps, post offices and public land surveys, set out no facts which are worthy of consideration by this court in arriving at a conclusion as to where the 37th parallel is on the earth's surface. The court will take notice of the fact that New Mexico did not come into existence as a state until January 6, 1912.

The averment that the 37th parallel of north latitude was fixed as the southern boundary of the state of Colorado, cannot raise any issue in this case as the bill of complaint alleges, in substance, the same thing, and the answer in Subdivision II thereof substantially admits this allegation of the bill to be correct. This averment in the answer is clearly superfluous and subject to the objection stated in the motion to strike out.

The allegations as to the effect of declaring the Carpenter survey to be the true boundary line, sets out matter which is of no value to this court in its effort to ascertain whether that survey correctly locates the 37th parallel; and the allegations as to the Macomb monument, the obliteration by Carpenter of marks thereon, and its distance of 93 links from the Carpenter line, are equally valueless to the court in the present case and add nothing of substance to what is contained in the bill of complaint as will appear by reference to page 344 of the printed bill.

The object of the motion to strike out is not in any way to embarrass defendant in the presentation of its defense, but only to get rid of immaterial and irrelevant matters, and to avoid the presentation of testimony as to such matters which would unnecessarily encumber the record and could have no effect except to confuse and delay.

The case presented by bill, answer and cross-bill, when stripped of the extraneous matters, is this:—Complainant relies upon the Carpenter survey as showing the true boundary line; defendant denies this, and appears to rely upon the Darling survey as showing the true line. The object of the parties is, or ought to be, to ascertain by the judgment of the court, which is correct.

O. A. LARRAZOLO,

FRANK W. CLANCY,

Counsel for Complainant.

FILE COPY

OCT 3 1921

IN THE

SUPREME COURT

OF THE

UNITED STATES

OCTOBER TERM, 1921

No. ~~11~~ Original.

THE STATE OF NEW MEXICO,

v.

THE STATE OF COLORADO.

Brief for Defendant on Complainants' Motion to Strike Parts of Answer.

VICTOR E. KEYES,
Attorney General of the State of Colorado.
CHARLES ROACH,
Deputy Attorney General.
WILLIAM R. RAMSEY,
Assistant Attorney General.
Solicitors and of Counsel for the Defendant.

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IN THE

SUPREME COURT

OF THE

UNITED STATES

OCTOBER TERM, 1921

No. 19. Original.

THE STATE OF NEW MEXICO,

v.

THE STATE OF COLORADO.

Brief for Defendant on Complainants' Motion to Strike Parts of Answer.

STATEMENT OF THE CASE.

This is an original suit between the States of New Mexico and Colorado over the southern boundary line of Colorado and the northern boundary line of New Mexico.

The bill of complaint filed in this Court on the 29th day of October, 1919, by the State of New Mexico avers that the true and correct boundary line between said states is as shown by a resurvey made in the year 1902 by Howard B. Carpenter, a United States Surveyor, in pursuance of a contract with the United States entered into by him on the 17th day of July, 1902, and the instructions given to him by the then acting Commissioner of the General Land Office; and what purports to be a copy of said instructions, and also of the field notes of said survey are attached to and made a part of the bill.

The bill further avers that in disregard of said line the State of Colorado "has usurped jurisdiction over a considerable amount of territory south of said line and has unlawfully levied and collected taxes on property south of said line, and through its courts has attempted to exercise both civil and criminal jurisdiction over persons and property lying south of said line; but it is unable to state how far to the south of said boundary line the State of Colorado claims jurisdiction."

Relying wholly upon the survey made in 1902, New Mexico asks the Court to decree the said Carpenter line to be the true boundary line between the States of New Mexico and Colorado along the parallel of 37 degrees of North latitude.

Colorado has filed an answer and cross-bill. The answer admits that Carpenter made a resurvey in 1902, but denies that the line run by him, or as shown by his field notes is the true boundary line between New Mexico and Colorado; and avers that the Carpenter survey was never accepted or adopted by either the State of Colorado, or the Territory of New Mexico, and that an effort to have the same confirmed by Congress failed by reason of the disapproval of the President, a copy of whose veto message is attached to and made a part of the answer.

Colorado admits that it has exercised jurisdiction over a considerable amount of territory south of said Carpenter line, and has levied and collected taxes upon property south of said line, that is, to the original boundary line established by one E. N. Darling, in the year 1868, and no farther.

For further defense, subdivision V of the answer contains a plea in bar to the bill of complaint, which is hereinafter fully set forth.

For affirmative relief the cross bill avers that the true boundary line is fully and correctly shown and delineated in the field notes and survey made by Ehud N. Darling in 1868, which are attached to and made a part of the cross bill, adopts the allegations of fact contained in the answer, and further avers that Carpenter, in making his survey destroyed and obliterated many of the monuments and corners established by Darling.

Upon final hearing the court is asked to declare and decree the true southern boundary line of the State of Colorado, and the northern boundary line of the State of New Mexico to be the line established by Ehud N. Darling in the year 1868, and that the defendant have such other and further relief as may be found necessary to correctly restore, re-establish and re-mark the said Darling line as the boundary line between complainant and defendant. New Mexico has filed an answer to the cross bill, and a replication to defendant's answer and the issues in the case are made up.

However, the complainant now presents a motion to strike from the answer of defendant certain parts thereof upon the alleged ground that "the same are insufficient as a defense, or any part of a defense to the allegations of the bill of complaint, and set out matters which would be entirely irrelevant to any issue which can properly be raised in this case, and are therefore impertinent."

The case now comes on for hearing upon the complainant's said motion to strike out certain averments of the answer contained in subdivisions III and V.

I.

ARGUMENT AGAINST MOTION TO STRIKE.

It is obvious that the purpose of complainant's motion to strike is to test the sufficiency in law of said averments of the

answer. It is, in effect, equivalent to a demurrer thereto, and, in fact, it is admitted by counsel, that the motion is made under Rule 33 of the Rules of Practice for the Courts of the United States in Equity, which permits a motion to strike out in order to "test the sufficiency of an answer."

The complainant has filed a replication to the answer joining issue upon the facts averred in it. According to the English Chancery Practice, which this court has recognized and referred to as affording outlines for the practice herein, the complainant thereby admits that if the particular facts stated in the answer are true, they are sufficient in law to bar its recovery; and if they are proved to be true, the bill must be dismissed.

By replying to the answer the complainant admits that it is sufficient in law, and can not afterwards raise any question as to its sufficiency.

Farley v. Kittson, 120 U. S. 303, 314.
Mitford's & Tyler's Pleadings and Practice in Equity, 302, 303, 458.
Story's Eq. Pleading, Sec. 697.
Hughes v. Blake, 6 Wheat. 453, 472.
Rhode Island v. Mass., 14 Pet. 210, 257.

If, however, the English Rule shall not be followed, and notwithstanding the filing of the replication the Court shall consider the motion to strike upon the ground mentioned therein, it is our contention that for the purposes of this motion the answer must be taken as true, and that it is a complete defense to the bill of complaint.

II.

SUBDIVISION III.

That part of the answer which is contained in subdivision III, and against which the motion to strike is directed, reads:

> "But defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by

> either the State of Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which passed the Senate and House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with his objections thereto, which resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter survey, and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is hereto attached and made a part hereof."

It is admitted that Carpenter made an *ex parte* survey in 1902, but the mere fact that he made such a survey is of no binding force. Realizing this, his survey was reported to Congress and an effort was made to confirm the same and establish it as the boundary line by legislation, which of course could not be done inasmuch as the boundary line had previously been established and could not be changed by Congress without the consent of the State of Colorado, which was not given. The resolution shows that there was already a boundary line in force, and the purpose of confirming the Carpenter survey was to establish a new boundary line different from that then existing, which had been established in 1868. The disapproval of the President was based upon the opinion and advice of the Attorney General of the United States set forth in the veto message as follows:

> "I have the honor to report, with respect to joint resolution S. R. 78, referred by you to this department,

that the purpose of the said resolution appears to be to correct the boundary line between the Territory of New Mexico and the States of Colorado and Oklahoma. The practical effect of establishing the new boundary line, so far as the State of Colorado is concerned, would be to remove from the jurisdiction of that State and add to the Territory of New Mexico a strip along nearly the whole of the southern boundary of the said State, in which there are located at least five post-offices and an appreciable number of inhabitants.

So far as I am aware no action has been taken by the legislature of the State of Colorado assenting to or accepting the location of the boundary as proposed in this resolution, and from such inquiry as I have been able to make in the very limited time since the resolution reached me, I am led to think that such assent or acceptance on the part of the State is improbable. Under these circumstances, I think it is of very doubtful expediency to have the line mentioned in the resolution accepted by the United States as the true boundary. It is not necessary to express an opinion as to the legal effect of such a resolution upon the rights of the United States or of the Territory of New Mexico, or the duties of federal or territorial officers; but it is clear that the resolution would not be binding upon the State of Colorado, and its adoption might lead to conflicts of jurisdiction within the long strip of territory to which I have referred, and possibly to the escape from legal punishment of those guilty of crimes, committed within the said strip. If it is deemed desirable to establish the true boundary line, an appropriate method to effect this would be to invoke by appropriate proceedings, the original jurisdiction of the Supreme Court. I therefore respectfully advise that the joint resolution in question do not receive your signature."

The refusal of Congress to sanction the proposed change in the boundary, of course, left the boundary line as it then

stood, as it was when originally established by Darling in 1868, as it was when Colorado was admitted into the Union as a state, and as it has remained until the present time.

Neither Congress by directing a resurvey, nor the General Land Office by causing the survey to be made has performed an act which is binding upon the State of Colorado, in the absence of its recognition or ratification of these acts. Colorado was not represented in the making of the Carpenter survey, nor has it recognized, consented to, or ratified any of said unauthorized acts which were wholly *ex parte*.

This clearly refutes the claim made by complainant that the Carpenter survey is the true and correct boundary, and furthermore the presumption is that the original line which was established more than fifty years ago was correctly established, therefore said averments are material and relevant to the issues herein involved.

III.

SENIOR SURVEY CONTROLS.

It is manifest that there have been two surveys of the boundary line between these two states—one made in 1868 by Ehud N. Darling and the other made by Howard B. Carpenter in 1902. There are no allegations in the bill of complaint of a previous survey to that made by Carpenter, but it is clearly shown by the instructions given to Carpenter by the then acting Commissioner of the General Land Office, and the field notes of Carpenter, which are made a part of the bill that there was an original survey made of this line by Darling in 1868. The Carpenter survey was not an original survey, but simply a *resurvey*.

No authority is shown for his survey other than that he entered into a contract with the United States to "resurvey re-establish and re-mark the boundary line between Colorado, and the Territories of New Mexico and Oklahoma." Among the instructions given to him are the following:

"You will begin your resurvey by proceeding to a

point not less than 20 miles east of the corner established and recognized as the S. W. corner of Colorado." (Pages 3 and 4 of the Bill.)

"Where lines of public surveys have been closed upon the Darling line, you will not attempt to eradicate the closing corners, but will endeavor to find and obliterate all evidences of the mile corners re-established by subdividing and other deputy surveyors in restoring the position of the Darling line."

"You will, however, leave standing the monuments now standing on the line between Colorado and Oklahoma, except those set by Darling. All evidences of corners or monuments set by Darling on south boundary of Colorado will be carefully obliterated." (Page 8 of the Bill.)

The Carpenter survey as shown by the oaths of his assistants and by Carpenter himself, purports to be a "re-survey of the South Boundary of the State of Colorado." (Pages 11 to 16, inclusive, and pages 347 to 349, inclusive, of the Bill.)

His contract and instructions were not to locate and establish the 37th parallel of North latitude, but to "resurvey, reestablish and re-mark the south boundary of Colorado." As a matter of fact the boundary line was originally established by Darling in 1868, and that was the established and recognized boundary in 1902 when Carpenter made his survey, and is today. This is shown by defendant's answer and that the boundary line had been originally established by Darling is disclosed by the field notes of the Carpenter survey in which he says he "went to a point on the line between Colorado and New Mexico, as established by E. N. Darling in 1868; the point being near his 313th mile and at his astronomical monument No. 10, which is a block of sandstone about 10 x 15 feet and 10 feet high, marked Colorado on N., 1868 on E., N. Mex. on S., and 37 N. L. on W. from which another block of sandstone bears N. 20° W. 130 Lks. dist. marked Colorado 1868." (Page 17 of Bill.)

In the final oath of Carpenter at page 350 of the bill he says:

"I have destroyed such evidences as I have been able to find, of corners, monuments originally established on said line by E. N. Darling, U. S. Surveyor."

So it is evident that two surveys have been made; that the Darling line is the senior survey by more than 30 years, and was the originally established boundary line between said states.

Instead of re-surveying, re-establishing and re-marking the said boundary line, Carpenter attempted a new fixation of the 37th parallel of north latitude independent of the line established by Darling in 1868, and the apparent purpose of his survey was to correct supposed defects in the Darling survey. These two surveys differ materially.

New Mexico contends that the Carpenter survey sets forth the true boundary line. Colorado contends that the true boundary line is as shown by the survey of Darling in 1868.

The real question now for this Court to determine is not which of the two surveys is correct, but where is the boundary line, as originally located, whether correctly located or not. It is not to make or create a new boundary line, but for the court to determine where the boundary line is, not where it ought to be, and when ascertained, to establish it by a final decree. It is immaterial which of the two surveys is correct.

The Carpenter survey should not prevail for the following reasons:

1. It is not shown to have been made by proper authority.

"It is the acts done on the ground by the surveyor in pursuance of lawful authority which constitutes the survey."

5 Cyc., p. 949.

"A survey is not usually admissible in evidence as showing the location of boundaries if it does not appear that it was made by proper authority."

4 R. C. L., Sec. 54, p. 116.

2. It was simply a re-survey, and does not purport to be the line as originally established.

"Original corners, as established by the government surveyors, if they can be found, or the places where they were originally established, if they can be definitely determined, are conclusive, without regard to whether they were located correctly or not."

5 Cyc. 873.

Washington Rock Co. v. Young, 29 Utah, 108, 80 Pac. 382.

"The law is well settled that an original survey of lands, upon the faith of which property rights have been based and acquired, controls over surveys subsequently made which injuriously affects such rights."

29 Utah 108, 118.

In Clement v. Parker, 125 U. S. 309, 332, it was said:

"It is unquestionably true that a junior survey can not control or enlarge the dimensions of a senior survey. We understand this to mean, that when the location of a survey is or can be ascertained and determined by its own marks upon the ground, its own calls and courses and distances, it can not be charged or controlled or enlarged or diminished by the marks or lines of an adjoining junior survey; but when, from the disappearance of these original landmarks, caused by time and other agencies, from the senior survey, the location of a particular line, or the identity of a corner, is left in uncertainty or becomes the subject of controversy, then the original and well established marks found upon a later survey made by the same surveyor about the same time, and adjoining the one in dispute, are regarded as legitimate evidence, not to contest or control, but to elucidate, throw light upon, and thus aid the jury in discovering the exact location of the older survey."

1 Dembitz on Land Titles, Sec. 4.
5 Cyc. 874, 875.
4 Am. & Eng. Enc. of Law, 787.
Goodman v. Myrick, 5 Ore. 65.
Payne v. English, 79 Calif. 540, 21 Pac. 952.
Irvin v. Rotramel, 68 Ill. 11.

Clement v. Northumberland Coal Co., 87 Pa St. 290.

Hubbard v. Busy, 80 Calif. 281, 22 Pac. 214.

Nesselrode v. Parish, 59 Iowa 570, 13 N. W. 746.

Billingsley v. Bates, 30 Ala. 376, 66 Am. Dec. 126.

A subsequent survey can not alter or control an original survey, for so far as it can be traced or proved it must govern.

In Diehl v. Zanger, 39 Mich. 601, 605, when the first survey of lots involved in litigation was made by one Campau, and a re-survey, made after the disappearance of the monuments of the original survey, is for the purpose of determining where they were; and not where they should have been. In delivering the opinion Mr. Justice Cooley said:

> "Nothing is better understood than that few of our early plats will stand the test of a careful and accurate survey without disclosing errors. This is as true of the government surveys as of any others, and if all the lines were now subject to correction on new surveys, the confusion of lines and titles that would follow would cause consternation in many communities. Indeed, the mischiefs that must follow would be simply incalculable, and the visitation of the surveyor might well be set down as a great public calamity. But no law can sanction this course. The surveyor has mistaken entirely the point to which his attention should have been directed. The question is not how an entirely accurate survey would locate these lots, but how the original stakes located them. * * * The city surveyor should, therefore, have directed his attention to the ascertainment of the actual location of the original landmarks set by Mr. Campau, and if those were discovered they must govern. If they are no longer discoverable, the question is where they were located."

In the City of Racine v. Emerson, 85 Wis. 80, 81; 39 Am. St. Rep. 819, 55 N. W. 177, Mr. Justice Orton said:

"The fact, generally known and quite apparent in the records of courts, is that two consecutive surveys by different surveyors seldom, if ever, agree; and the greater number of surveys, the greater number of differences and disagreements will occur. When two surveys disagree, the correct one can not be determined by still another survey. It follows that resurveys are of very little use in such a case as this, except to confuse it."

"In re-surveying a tract of land according to a former plat or survey, the surveyors only function or right is to re-locate upon the best evidence obtainable, the corners and lines at the same places where originally located by the first surveyor on the ground. Any departure from such purpose and effort is unprofessional, and so far as any effect is claimed for it, unlawful."

Pereles v. Gross, 126 Wis. 122.

3. The original Darling line had been established by proper authority more than thirty years, and was the true and subsisting boundary line when the Carpenter survey was made.

4. The Carpenter survey was never accepted, nor confirmed by Congress nor by either of the States or Territories involved.

5. The Carpenter survey not only changes the boundary line between Colorado and New Mexico, but would require a change in the S. W. corner of Kansas and the N. W. corner of Oklahoma. The Carpenter line is one half mile north of the S. W. corner of Kansas, and N. W. corner of Oklahoma.

6. The adoption of the Carpenter survey would injuriously affect public and private rights based upon the original line established by Darling.

7. Carpenter was a trespasser upon territory over which Colorado then had dominion and exercised sovereignty, his survey was made without the consent of the State of Colorado, and his obliteration and destruction of corners and monuments of the boundary line then in existence and which had been es-

tablished more than thirty years prior to his survey, was illegal and unauthorized.

8. New Mexico is bound by the action of Congress in refusing to confirm or accept the Carpenter survey.

IV.

BOUNDARY WHEN COLORADO WAS ADMITTED INTO THE UNION AS A STATE.

The Darling line was the boundary at the time Colorado was admitted into the Union as a State in 1876. No other line was claimed by any of the interested parties. The Carpenter survey was not made until twenty-six years afterwards (1902).

The well-settled rule is that the boundaries of a state must be determined by what they were at the time of its admission into the Union.

Missouri v. Kentucky, 11 Wall. 395.
Indiana v. Kentucky, 136 U. S. 479.

New Mexico was admitted into the Union as a State January 5, 1912, and at that time its northern boundary was the Darling line, so when both states were admitted into the Union the Darling line constituted the boundary between them, and under the rule mentioned that must be determined to be the true boundary line, and Colorado is now and has been for many years prior to the commencement of this suit in the actual and exclusive possession of, and exercising dominion and sovereignty over the territory involved herein, to the Darling line.

V.

SUBDIVISION V.

This subdivision of the answer contains a plea in bar to the bill of complaint and reads as follows:

> "For further defense to said bill of complaint, this defendant avers that in the Act of Congress, approved March 3, 1875, to enable the People of Colorado to form a Constitution and State government, and be admitted

into the Union (18 Statutes at Large 474), and also by the Constitution adopted by the vote of the People of Colorado, and under which the State of Colorado was admitted into the Union by Proclamation of President Grant, August 1, 1876, the 37th parallel of North latitude between the 25th and 32nd meridians of longitude West from Washington, was fixed as the southern boundary line of that State; that pursuant to authority of an Act of Congress, approved March 2, 1867 (14 Statutes at Large 466) Ehud N. Darling, United States Surveyor and Astronomer, by the most approved methods of the time, surveyed and established in the year 1868 the 37th parallel of North latitude so far as it constituted the boundary line between the Territories of Colorado and New Mexico, and marked the same upon the earth's surface by mile corners and monuments, a copy of which survey, together with the field notes of his work is attached hereto and made a part hereof which field notes of said survey were examined and approved on the 30th day of April, 1869, by the Honorable Joseph S. Wilson, Commissioner of the General Land Office, as appears by his certificate to that effect attached to said field notes.

Defendant avers that for more than thirty (30) years, the position of the said Darling line remained undisputed, and the correctness of its technical execution unquestioned, and as so established the said Darling line has been generally recognized and acquiesced in by both of the States herein involved, and accepted by the Federal government, and is now recognized and accepted by the Federal government as the true and subsisting boundary line between Colorado and New Mexico; and by reason of the right and title acquired as hereinbefore set forth, this defendant from the time said boundary was so established in 1868 to the present time, has held lawful and rightful possession of and exercised dominion and sovereignty, and now claims the same, over the territory down to the said southern boundary line as estab-

lished by the said Darling, and no farther, county lines have been formed, towns and settlements have grown up, school districts, election districts, voting precincts, land districts and water districts have been created with reference to said line, public officers have been elected, property has been assessed, taxes levied and collected under the authority of the State of Colorado and its courts of both civil and criminal jurisdiction have exercised unquestioned jurisdiction in all places North of said boundary line, and the State of New Mexico has exercised a like jurisdiction in all places South of said line. County maps, State maps and maps prepared by the Federal government have for more than forty years last past delimitated said boundary according to said Darling survey, and government post offices have been established as being in Colorado when above said line, and in New Mexico when below said line, and public land surveys on both sides of said line were closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico fixed by reference to said line.

The 37th parallel of North latitude, as established by Howard B. Carpenter, passes through several towns lying wholly within the State of Colorado, according to the boundary as originally surveyed by Darling, and along the entire line there is a material, and in many places, excessive variance between the lines of the two surveys, and the effect of said Carpenter survey if declared the true boundary line would be to remove a considerable strip of territory which is now within the State of Colorado, according to the Darling survey, and place it in the State of New Mexico.

The stone monument established by Capt. Macomb, U. S. A. of the Topographical Bureau in 1858, under direction of the War Department, marking the intersection of the 37th parallel of North Latitude with 103° of West Longitude from Greenwich, adopted as the initial point of the Darling survey, was designated as the

northwest corner of Indian Territory, now State of Oklahoma, 1874 by John J. Major, U. S. Surveyor and Astronomer, in the survey and marking of the boundary between Indian Territory and Colorado Territory. The line attempted to be established by Carpenter passed 93 lks. south of said Macomb monument and departed from the boundary lines established by both Darling and Major, and said Carpenter obliterated the marks upon said Macomb monument, theretofore and since hitherto recognized as the corner upon the south line of Colorado and common to the States of New Mexico and Oklahoma, and attempted to ré-locate said common corner at a point about two miles easterly from said long established and accepted Macomb monument.

The said Carpenter survey consisted of a new fixation of the 37th parallel of North latitude independent of the line established by Darling in 1868, and not only failed of confirmation by Congress, but the Federal government up to the present time has declined to recognize the said Carpenter survey as the true boundary line between the said two states, and on the contrary, has accepted and still accepts the said Darling survey as the true and correct boundary line between said two states.

All of which matters and things as hereinbefore stated, this defendant avers to be true and this defendant pleads the same in bar to the bill of complaint, and prays the judgment of the Court whether it shall further answer said bill.

Wherefore, having answered fully all the matters in plaintiff's bill set forth, defendant prays this Honorable Court that the prayer thereof be not granted, but that the Court decree that the boundary line between the State of New Mexico and the State of Colorado be, in accordance with said Darling survey, the true boundary line between the said two states, and that the said bill be dismissed and the defendant go hence with its costs in this behalf incurred, and that this defendant have such

other and further relief as may be found necessary and as to the Court shall seem meet and proper."

All of the foregoing averments of the answer are attacked by the motion to strike, except the last two paragraphs thereof.

VI.

FEDERAL CONSTITUTIONAL PROVISIONS AND POWERS OF CONGRESS.

Article IV, Sec. 3, of U. S. Constitution:

> "New states may be admitted by the Congress into this Union; but no new state shall be formed or erected within the jurisdiction of any other state, nor any state be formed by the junction of two or more states, or parts of states, without the consent of the legislatures of the states concerned, as well as of the Congress."

Subdivision 2 of Sec. 3, Art. IV, reads:

> "The Congress shall have power to dispose of, and make all needful rules and regulations respecting the territory or other property belonging to the United States; and nothing in this Constitution shall be so construed as to prejudice any claims of the United States, or of any particular State."

VII.

BOUNDARIES ACCORDING TO ENABLING ACTS AND STATE CONSTITUTIONS.

New Mexico was organized as a Territory on December 13, 1850. Its original area formed a part of the region transferred by Mexico to the United States by the treaty of Guadalupe-Hidalgo and by Texas. It was subsequently enlarged by the Gadsden Purchase. The formation of Colorado Territory in 1861, and of Arizona in 1863 reduced its area to its present limits.

The following clause from the Act of Congress creating the Territory gives its original limits:

"All that portion of the territory of the United States bounded as follows:

Beginning at a point in the Colorado River where the boundary line with the Republic of Mexico crosses the same; thence eastwardly with the said boundary line to the Rio Grande; then following the main channel of the said river to the parallel of the thirty-second degree of North latitude; then East with said degree to its intersection with the one hundred and third degree of longitude West of Greenwich; thence North with said degree of longitude to the parallel of thirty-eighth degree of North latitude; then West with said parallel to the summit of the Sierra Madre; then South with the crest of said mountains to the thirty-seventh parallel of North latitude; then West with said parallel to its intersection with the boundary line of the State of California; thence with said boundary line to the place of beginning—be, and the same is hereby erected into a temporary government by the name of the territory of New Mexico."

"Provided, That nothing in this Act contained shall be construed to inhibit the government of the United States from dividing said territory into two or more territories, in such manner and at such times as Congress shall deem convenient and proper, or from attaching any portion thereof to any other territory or state."

Act Sept. 9, 1850, Ch. 49, 9 Stat. L. 447.

New Mexico was admitted into the Union January 6, 1912. The Enabling Act does not define the boundaries thereof, but as fixed in the Constitution when admitted they are as follows:

Beginning at the point where the thirty-seventh parallel of north latitude intersects the one hundred and third meridian west from Greenwich; thence along said one hundred and third meridian to the thirty-second parallel of north latitude; thence along said thirty second parallel to the Rio Grande, also known as the Rio Bravo del Norte, as it existed on the ninth day of September, one thousand eight hundred and fifty; thence,

following the main channel of said river, as it existed on the ninth day of September, one thousand eight hundred and fifty, to the parallel of thirty one degrees forty seven minutes north latitude; thence west one hundred miles to a point; thence south to the parallel of thirty one degrees twenty minutes north latitude; thence along said parallel of thirty one degrees twenty minutes, to the thirty second meridian of longitude west from Washington; thence along said thirty second meridian to the thirty-seventh parallel of north latitude; thence along said thirty-seventh parallel to the point of beginning."

Colorado was organized as a Territory on February 28, 1861, with the limits which it has at present, being made from portions of Utah, New Mexico, Kansas and Nebraska. It was admitted into the Union as a State August 1, 1876, and the following clause from the Enabling Act and Article 1 of its Constitution when admitted, fixes its limits:

"The boundaries of the State of Colorado shall be as follows: Commencing on the thirty-seventh parallel of North latitude, where the twenty-fifth meridian of longitude west from Washington crosses the same; thence north, on said meridian, to the forty-first parallel of north latitude; thence along said parallel, west to the thirty-second meridian of longitude west from Washington; thence south, on said meridian to the thirty-seventh parallel of north latitude; thence along said thirty-seventh parallel of north latitude to the place of beginning."

VIII

NEW MEXICO IS BOUND BY THE ACTS OF THE UNITED STATES.

At the time Colorado was admitted into the Union as a State, and also at the time of the admission of New Mexico as a state, the United States were committed to the Darling line as the boundary between said states, and the State of New Mexico is bound by such recognition and adoption, and it must

aside by the condition of its predecessor, and is estopped, and can not now be heard to disavow the Darling line as its true northern boundary.

A newly formed state is bound by the acts of its predecessor, the Government of the United States, in regard to matters of boundary, which had plenary jurisdiction over the subject as long as the state remained a territory.

Missouri v. Iowa, 7 How. 660.
Missouri v. Kentucky, 11 Wall., 395.

In Missouri v. Iowa, 7 How. 660, 870, this Court said:

"The new state of Iowa came into the Union December 27, 1847, and up to this date she was bound by the acts of her predecessor, the United States, forasmuch as the latter might have directly conceded to Missouri a new boundary on the north, as was done on the west; and so likewise, Iowa is bound by the acts and admissions of the United States, tending indirectly to confirm and establish a particular line as the northern boundary of Missouri. * * *

The country north of the State of Missouri was for a time attached to the Territory of Michigan, and then to the Territory of Wisconsin. By the act of June 12, 1838 (Ch. 96), it was formed into a separate territorial government by the name of Iowa. And by another act of the same date (Ch. 100), the territory was formed into two land districts, the southern one embracing the country in dispute.

And on the Iowa side, the public surveys were executed, and lands were sold up to Sullivan's northern line. Nor had the Surveyor General of Illinois and Missouri any jurisdiction to go beyond it north; nor the surveyor's department of Iowa, to cross it by surveys to the south. From the time that Missouri became a state to this day, Sullivan's line has been recognized by the United States as the true northern boundary of Missouri, so far as it could be done through the department of public lands."

And thirdly, Congress, as early as 1834, organized a territorial government bounded by said line, laid off counties bounded by it on the south, as early as 1836, and governed the territory for ten years up to that time—all the time recognizing it as the proper northern boundary of Missouri.

From these facts it is too manifest for argument to make it more so, that the United States were committed to this line when Iowa came into the Union. And, as already stated, Iowa must abide by the condition of her predecessor, and can not now be heard to disavow the Old Indian Line as her true southern boundary. * * *

We are, therefore, of opinion that the northern boundary of Missouri is the Osage Line, as run by Sullivan in 1816 from the northwest corner, made by him, to the Des Moines River, and that a line extended due west from said northwest corner to the Missouri River, is the proper northern boundary on that end of the line. And this is the unanimous opinion of all the judges."

And the following language is quoted from the decree:

"And the Court further finds, that the State of Iowa is estopped from setting up claim to a line south of the old Indian boundary, known as Sullivan's line, as said State, by her cross-bill, assumed to do; because her predecessor, the United States, by many acts, and by uniform assumptions, up to the time when Iowa was created, in December, 1846, recognized and adopted Sullivan's line as the proper northern boundary of the State of Missouri; and that the State of Iowa is bound by such recognition and adoption."

In the case of Oklahoma v. Texas, decided April 11, 1921, this court held that the State of Oklahoma which had succeeded to the governmental jurisdiction formerly held by the United States over the Territory from which the state was formed, is in privity with the United States with respect to such Territory, so that a decree in a former suit between the United States and Texas regarding the boundary of the Territory is binding on both states in a subsequent suit between them.

IX

LONG POSSESSION AND ACQUIESCENCE.

Assuming the averments of subdivision V, included within the motion to strike, to be true, it appears, and is admitted by complainant, that by proper authority, and by the most approved methods of the time, the 37th parallel of north latitude so far as it constituted the boundary line between the Territories of New Mexico and Colorado was surveyed, established, and marked upon the earth's surface by mile corners and monuments, by E. N. Darling, United States Surveyor and Astronomer, in the year 1868, and that the same was examined and approved by the Commissioner of the General Land Office in 1869.

And further that for more than thirty (30) years the position of the said Darling Line remained undisputed, and the correctness of its technical execution unquestioned, and that as so established the said Darling Line had been generally recognized and acquiesced in by both Colorado and New Mexico, and accepted by the Federal Government, and is now recognized by the Federal Government as the true and subsisting boundary line between Colorado and New Mexico, and that Colorado has held lawful and rightful possession of and exercised dominion and sovereignty, and now claims the same, over the territory down to the said southern boundary as established by Darling, and no farther, ever since the year 1868. This is conclusive upon the complainant and is a complete bar and defense to the bill of complaint.

New Mexico is not only bound by the acts of the United States in recognizing and adopting the Darling survey as the true boundary but is also estopped by the doctrines of long possession, prescription, laches and acquiescence from now asserting a different boundary line.

AUTHORITIES.

In Rhode Island v. Massachusetts, 4 Howard 591, decided in 1846, it was alleged by Rhode Island that there was a mistake in the location of the boundary line between said states. The bill was dismissed. The Court said:

> "More than two centuries have passed since Massachusetts claimed and took possession of the territory up to the line established by Woodward and Saffrey. This possession has ever since been steadily maintained, under an assertion of right. It would be difficult to disturb a claim thus sanctioned by time, however unfounded it might have been in its origin. * * * Surely this, connected with the lapse of time, must remove all doubt as to the right of the respondent under the agreements of 1711 and 1718. No human transactions are unaffected by time. Its influence is seen on all things subject to change. And this is peculiarly the case in regard to matters which rest in memory, and which consequently fade with the lapse of time, and fall with the lives of individuals. For the security of rights, whether of states or individuals, long possession under a claim of title is protected. And there is no controversy in which this great principle may be involved with greater justice and propriety than in a case of disputed boundary."

In 1890, there was a boundary controversy between the States of Indiana and Kentucky over a tract of land called "Green River Island." In Indiana v. Kentucky, 136 U. S. 479, 510, it was said in the opinion of the Court delivered by Mr Justice Field:

> "This long acquiescence in the exercise by Kentucky of dominion and jurisdiction over the island is more potential than the recollections of all the witnesses produced on either side. Such acquiescence in the assertion of authority by the State of Kentucky, such omission to take any steps to assert her present claim by the State of Indiana, can only be regarded as a recognition of the right of Kentucky too plain to be overcome, except by the clearest and most unquestioned proof. It is a principle of public law universally recognized, that long acquiescence in the possession of territory and in the exercise of dominion and sovereignty over it, is conclusive of the nation's title and rightful authority."

The court also referred to the case of Rhode Island v. Massachusetts and quoted therefrom with approval that part of the opinion relating to the long possession of Massachusetts and the delays in alleging any mistake in the action of the colonies, which we have hereinbefore set forth.

The Court adds:

"Vattel in his Law of Nations, speaking on the same subject, says:

> 'The tranquillity of the people, the safety of States, the happiness of the human race do not allow that the possessions, empire and other rights of nations, should remain uncertain, subject to dispute and ever ready to occasion bloody wars. Between nations, therefore, it becomes necessary to admit prescription founded on length of time as a valid and incontestable title.' Book II, c. 11, Sec. 149. And Wheaton in his International Law, says: 'The writers on natural law have questioned how far that peculiar species of presumption arising from the lapse of time, which is called prescription, is justly applicable as between nation and nation; but the constant and approved practice of nations shows that by whatever name it be called, the uninterrupted possession of territory or other property for a certain length of time by one State excludes the claim of every other in the same manner as, by the law of nature and the municipal code of every civilized nation, a similar possession by an individual excludes the claim of every other person to the article of property in question. Part. II, c. IV, Sec. 164.' * * * 'The long acquiescence of Indiana in the claim of Kentucky, the rights of property of private parties which have grown up under grants from that State, the general understanding of the people of both States in the neighborhood, forbid at this day, after a lapse of nearly a hundred years since the admission of Kentucky into the Union, any disturbance of that State in her possession of the island and jurisdiction over it'."

The doctrine laid down in the foregoing cases was adhered to in the case of Virginia v. Tennessee, 148 U. S. 503, decided in 1892.

It was claimed by Virginia that by the charters of the English sovereigns, under which the colonies of Virginia and North Carolina were formed, the boundary line between them was intended and declared to be a line running due west from a point on the Atlantic Ocean on the parallel of latitude thirty-six degrees and thirty minutes north; that the State of Tennessee, having been created out of the territory formerly constituting a part of North Carolina, the same boundary line continued between her and Virginia, and also that the boundary line claimed by Tennessee does not follow this parallel of latitude but varies from it by running too far North so as to unjustly include a strip of land about one hundred and thirteen miles in length, and varying from two to eight miles in width, over which she asserts and unlawfully exercises sovereign jurisdiction.

Tennessee contended that the boundary line, as declared in the English Charters, between the colonies of Virginia and North Carolina was run and established by commissioners appointed by Virginia and Tennessee after they became States of the Union, by Virginia in 1800 and by Tennessee in 1801; that the line they established was subsequently approved in 1803 by the legislative action of both States, and has been recognized and acted upon as the true and real boundary between them ever since until the suit was filed—a period of more than 85 years. Tennessee, further contended that the line thus established and acted upon was not open to attack as to its correctness but must be held to be the true boundary line between the States, even though some deviations from the line of the parallel of latitude thirty-six degrees and thirty minutes north may have been made by the commissioners in the measurement and demarcation of the line. The decision was adverse to Virginia. The Court held:

> "A boundary line between States or Provinces, as between private persons, which has been run out, located and marked upon the earth, and after-

wards recognized and acquiesced in by the parties, for a long course of years, is conclusive, even if it be ascertained that it varies somewhat from the courses given in the original grant, and the line so established takes effect, not as an alienation of territory, but as a definition of the true and ancient boundary. Lord Hardwicke, in Penn. v. Lord Baltimore, 1 Vesey Sen. 444, 448; Boyd v. Graves, 4 Wheat. 513; Rhode Island v. Massachusetts, 12 Pet. 657, 734; United States v. Stone, 2 Wall. 525, 537; Kellogg v. Smith, 17 Cush. 375, 382; Chenery v. Waltham, 8 Cush. 327; Hunt on Boundaries, (3rd Ed.), 306."

The Court adds:

"There are also moral considerations which should prevent any disturbance of long recognized boundary lines; considerations springing from regard to the natural sentiments and affections which grow up for places on which persons have long resided; the attachment to country, to home and to family, on which is based all that is dearest and most valuable in life." * * *

"The compact in this case having received the consent of Congress, though not in express terms, yet impliedly, and subsequently, which is equally effective, became obligatory and binding upon all the citizens of both Virginia and Tennessee. *Nor is it any objection that there may have been errors in the demarcation of the line which the States thus by their compact sanctioned. After such compacts have been adhered to for years neither party can be absolved from them upon showing errors, mistakes or misapprehension of their terms, or in the line established; and this is a complete and perfect answer to the complainant's position in this case.*" (Italics ours.).

In Louisiana v. Mississippi, 202 U. S. 1, 53, Mr. Chief Justice Fuller, delivering the opinion of the Court, said:

"Moreover, it appears from the record that the various departments of the United States Government have recognized Louisiana's ownership of the disputed area; that Louisiana has always asserted it; and that Mississippi has repeatedly recognized it, and not until recently has disputed it.

The question is one of boundary, and this Court has many times held that, as between the States of the Union, long acquiescence in the assertion of a particular boundary and the exercise of dominion and sovereignty over the territory within it should be accepted as conclusive, whatever the international rule might be in respect of the acquisition by prescription of large tracts of country claimed by both. Virginia v. Tennessee, 148 U. S. 503; Indiana v. Kentucky, 136 U. S. 479; Missouri v. Kentucky, 11 Wall. 305; Rhode Island v. Massachusetts, 4 How. 591."

One of the leading cases is that of Maryland v. West Virginia, 217 U. S. 1, decided in 1910. The boundary in controversy runs between the two states from the headwaters of the Potomac to the Pennsylvania line. The facts involved that portion of the boundary between the two States lying between Garrett County, Maryland, and Prescott County, West Virginia. The bill charges that the State of West Virginia is in possession of and exercising jurisdiction over a large part of the territory rightfully belonging to Maryland; that the true line of the western boundary of Maryland is a meridian running south to the first or most distant fountain of the Potomac River, and that such true line is several miles south and west of the line which the State of West Virginia claims, and over which she has attempted to exercise territorial jurisdiction.

The State of West Virginia, in setting up her claim concerning the boundary in dispute, states that the true boundary line, long recognized and established is the one known as the "Deakins" line, and in the answer and cross-bill filed by her, she prays to have that line established as the true line between

the States. This case, similar in many respects to the case at bar, contains a review of the authorities which we have cited, and following such previous decisions, the Court, in a clear and exhaustive opinion by Mr. Justice Day, reaffirms the doctrine uniformly laid down and recognized as applicable to cases of this kind, and freely quotes therefrom.

In substance, it holds that where possession of territory has been undisturbed for many years a presumptive right arises which is equally binding under the principles of justice on States and individuals; that even if a meridian boundary line is not astronomically correct, it should not be overthrown after it has been recognized for many years and becomes the basis for public and private rights of property.

After referring to the doctrine laid down by this Court in previous cases, and quoting from standard authors in support thereof, the opinion adds:

> "An application of these principles can not permit us to ignore the conduct of the States and the belief of the people concerning the purpose of the boundary line known as the old state, or Deakins line, and to which their deeds called as the boundary of their farms, in recognition of which they have established their allegiance as citizens of the State of West Virginia, and in accordance to which they have fixed their homes and habitations. * * *.
>
> The effect to be given to such facts as long continued possession 'gradually ripening into that condition which is in conformity with international order,' depends upon the merit of individual cases as they arise. I Oppenheim International Law, Sec. 243. In this case we think a right, in its nature prescriptive, has arisen, practically undisturbed for many years, not to be overthrown without doing violence to principles of established right and justice equally binding upon States and individuals. Rhode Island v. Massachusetts, 12 Pet. 657. * * *.
>
> Upon the whole case, the conclusions at which we have arrived, we believe, best meet the facts disclosed

in this record, are warranted by the applicable principles of law and equity, and will least disturb rights and titles long regarded as settled and fixed by the people most to be affected."

According to the foregoing authorities, and the well-settled doctrine applicable to boundary cases, which has been repeatedly pronounced by this court in the clearest and most positive terms, the averments of the answer which are attacked by the motion to strike are not only material and relevant, but are a complete answer and defense to the bill of complaint.

We respectfully submit that the motion to strike should be overruled and the said averments of the answer held to be sufficient in law, upon which we pray the judgment of the court.

Respectfully submitted,

VICTOR E. KEYES,
Attorney General of the State of Colorado.
CHARLES ROACH,
Deputy Attorney General.
WILLIAM R. RAMSEY,
Assistant Attorney General.
Solicitors and of Counsel for the Defendant

FILE COPY

Office Supreme Court
OCT 4 1921
JAMES

IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1921.

~~No. 12~~ #4 Original.

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO.

MOTION.

Now comes the State of Colorado, the above named defendant, and moves the court to set down for hearing and oral argument, upon a day certain and convenient to the court, the complainant's motion to strike out certain parts of the defendant's answer.

THE STATE OF COLORADO,
By VICTOR E. KEYES,
Attorney General,
Solicitor and of Counsel for the State of Colorado.
CHARLES ROACH,
Deputy Attorney General,
WILLIAM R. RAMSEY,
Assistant Attorney General,
Solicitors and of Counsel for the State of Colorado.

Post Office Address: Denver, Colorado.

IN THE SUPREME COURT OF THE UNITED STATES.

No. 19. ORIGINAL.

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO.

NOTICE.

To the State of New Mexico, complainant herein, and to Honorable Frank W. Clancy, special counsel for said Complainant:

You will please take notice that the defendant in the above entitled cause will, on Saturday, the 23d day of July, A. D. 1921, or as soon thereafter as the said court shall be in session and counsel can be heard, move the court to set down for hearing and oral argument the complainant's motion to strike out certain parts of the defendant's answer. A copy of defendant's said motion is annexed hereto.

THE STATE OF COLORADO,
By VICTOR E. KEYES,
Attorney General for the State of Colorado.
CHARLES ROACH,
Deputy Attorney General;
WILLIAM R. RAMSEY,
Assistant Attorney General,
Solicitors and of Counsel for said Defendant.

SANTA FE, NEW MEXICO.

Service of the foregoing notice, by the receipt of a copy thereof, together with a copy of the motion mentioned therein, is hereby acknowledged this twenty-fifth day of July, A. D. 1921.

FRANK W. CLANCY.

[Endorsed:] Supreme Court U. S. October term, 1921. Term No. 19, original. The State of New Mexico, complainant, *vs.* The State of Colorado. Motion to set for hearing motion to strike out parts of answer, notice, and proof of service. Filed July 25, 1921.

FILE COPY

Office Supreme Court, U. S.
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CLERK

ON MOTION

In the

In the Supreme Court of the United States

OCTOBER TERM, 1921.

No. 19, Original.

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO.

REPLY BRIEF ON MOTION TO STRIKE OUT PARTS OF ANSWER

Defendant's brief on said motion was received by counsel for complainant on October 1, 1921, although defendant's attorney general had had a copy of the motion and argument in support thereof for more than 15 months previous. I feel compelled to make some reply to defendant's brief as I do not, at present, feel that I ought to incur the expense involved in a journey of over 2,000 miles to make oral argument upon such a motion.

Defendant's brief first attempts to set up the petty point that, because the complainant has filed a replication to the answer, it has admitted that the answer is sufficient, and therefore complainant cannot properly raise any question as to the sufficiency of the answer by a motion to strike out parts thereof. This effort to avoid any consideration of the motion itself, does not appear to be made seriously as the defendant then proceeds to discuss the merits of the motion. Reference to the replication will, I believe, show the absurdity of this position of the defendant, for, as I recollect, not having at hand a copy thereof, it is carefully limited to so much of the answer as is not attacked

by the motion to strike out. Moreover, under Rule 31 of the Equity Rules of Practice, no replication is required to put a case at issue, unless the answer assert a set-off or counterclaim, but in this case where complainant sought to strike out parts of the answer, so as not to be considered as taking issue upon immaterial allegations of fact, it seemed proper to file a limited sort of replication at the same time with the motion to strike out what was deemed immaterial. No further attention will be given to this attempt to avoid the question raised by the motion which seeks, as stated in the argument in support thereof, "only to get rid of immaterial and irrelevant matters, and to avoid the presentation of testimony as to such matters which would unnecessarily encumber the record and could have no effect except to confuse and delay."

The argument contained in defendant's brief may be condensed into a very short statement. The record discloses, and the argument in support of the motion as well as the brief of defendant, distinctly declares, that two official surveys have been made of the boundary line between Colorado and New Mexico, one by a man named Darling in 1868, which was approved by the Commissioner of the General Land Office, and another by a man named Carpenter in 1902-3, which was also approved by the Commissioner of the General Land Office. Defendant relies on the Darling survey while the complainant rests its case upon the correctness of the Carpenter survey which differs from the other. Defendant argues that it makes no difference which survey is correct; that the Darling survey must prevail because it is the senior survey and is therefore superior to the other even though it may not be on or anywhere near, the thirty-seventh parallel of latitude, declared by Congress, by the Constitution of Colorado and by the Constitution of New Mexico, to be the boundary line between Colorado and New Mexico. If Darling had located the line on the thirty-sixth parallel and said it was on the thirty-seventh parallel, and a correct survey on the thirty-seventh parallel were made thirty years later, defendant's contention is, in effect, that the earlier survey, although

a whole degree of latitude away from where it ought to be, must prevail on account of its age.

The real argument to be found in the defendant's brief, however, is based upon the doctrine set out in the case of Missouri v. Iowa, 7 How., page 660, which is that a state is in such privity with the United States as to matters antecedent to the admission of the state into the Union, that it is bound by what the Un...d States may have done while the state was a territory and unable to assert any rights for itself. This might be good ground for sustaining the matter in the fifth subdivision of the answer, which is objected to by the motion to strike out, were not the statements therein contained as to the action of the United States, substantially contradicted by what appears in the record so far as it has gone. Those statements will be found set out at pages 4 and 5 of the argument in support of the motion, and at pages 14 and 15 of defendant's brief. They are in substance that the Darling line has been generally recognized and acquiesced in by both states and accepted by the federal government and is now recognized and accepted by the federal government as the true and subsisting boundary line between Colorado and New Mexico.

As to the allegation that the Darling line has been recognized and acquiesced in by both states, the attention of the court is again called to the fact that New Mexico, as a state, never had the power to recognize or acquiesce in anything until after January 6, 1912, and the institution of this suit within a reasonable time thereafter is a distinct contradiction of this assertion.

As to the statement that that line has been recognized and accepted by the federal government, this also is substantially contradicted by what appears in the record, which distinctly shows that this case is not like the case of Missouri vs. Iowa, relied on by defendant, in which, at pages 678-9, this court said:

> "And the court further finds, that the State of Iowa is estopped from setting up claim to a line south of the old Indian boundary, known as Sullivan's line, as said state, by her cross bill, assumes to do; because her predecessor, the United States, by many acts, and by

uniform assumptions, up to the time when Iowa was created, in December, 1846, recognized and adopted Sullivan's line as the proper northern boundary of the State of Missouri; and that the State of Iowa is bound by such recognition and adoption."

And at page 673 of the opinion in that case the court said:

"From the time that Missouri became a state to this day, Sullivan's line has been recognized by the United States as the true northern boundary of Missouri, so far as it could be done through the department of public lands."

In the present case it appears by clear statements in the pleadings and by necessary inferences therefrom, that the United States has not "by uniform assumptions" up to the time that New Mexico was created, recognized and adopted the Darling line as the proper southern boundary of the State of Colorado, nor recognized it as such boundary from the time that Colorado "became a State to this day." It must be clear that both the legislative and executive departments of the government have not so recognized and accepted the Darling line. It is distinctly averred that the Darling line was by the land department established and approved in 1868, and that, by the same department, the Carpenter line was established and approved in 1903. These surveys cannot have been made without authorization of congress, and we find such authority for the Carpenter survey in the statutes. A like authority can be found for the earlier Darling survey, at page 466 of 14 Stat. at Large.

In the Deficiency appropriation bill for the fiscal year ending June 30, 1902, which is Chapter 1351 in 32 Stat. at Large at page 574, is the following:

"BOUNDARY LINE, COLORADO, NEW MEXICO AND OKLAHOMA:

"For the re-survey and re-establishment of the line of the thirty-seventh parallel of north latitude, for the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between

the twenty-fifth and thirty-second degrees of longitude west from Washington, at a rate per mile to be fixed by the Secretary of the Interior, and for the examination in the field of said survey, a calculated distance of three hundred and eighty-seven and one-tenth miles, to continue available during the fiscal year of nineteen hundred and three, thirty-one thousand five hundred dollars."

And in Chapter 1007, in the same volume, which is the Sundry Civil appropriation bill for the fiscal year ending June 30, 1904, at page 1117, is the following:

"The appropriation of thirty-one thousand five hundred dollars for the re-survey and re-establishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, contained in the Act of Congress approved July first, nineteen hundred and two, making appropriations to supply deficiencies in the appropriations for the fiscal year ending June thirtieth, nineteen hundred and two, and for prior years, and for other purposes, is hereby continued and made available until June thirtieth, nineteen hundred and four."

We have here another legislative declaration that the thirty-seventh parallel of north latitude is the boundary line, and a direction for its re-survey which would be quite unnecessary if the United States had recognized, or did then recognize, the Darling survey as having fixed the boundary line where it ought to be; and it is unthinkable that congress would have acted as it did on this subject, except in pursuance of recommendations from the Land Department.

By reference to Senate Document No. 89, 58th Congress, 3d Session, there will be found in a letter from the Acting Commissioner of the General Land Office, a resumé of the attempts by the land department to ascertain where the boundary was, clearly showing that that department did not, as in the Missouri-Iowa case, recognize a line "so far as it could be done" as the state boundary of Colorado. It shows also the condition of ascertained defects and inaccuracies in the Darling survey which led to the making of the Carpenter survey. It shows that there

were "wide stretches of the line in certain places unmarked in any manner"; that in one locality the investigations of an examiner of surveys made it "apparent that in that locality very few traces of the boundary line as established by E. N. Darling were to be found, and such as were found were not by any means on the same parallel of latitude."

The following further quotation from that letter indicates fully that the land department did not recognize the Darling line:

> "In 1873 it became necessary to establish the east boundary of the southern Ute Indian reservation in Colorado, the same being the one hundred and seventh meridian as extended north from the thirty-seventh parallel, the south boundary of the state. Under instructions from this office, R. C. Darling, United States surveyor, established at a point on the E. N. Darling line the southeast corner of the said reservation estimated as on the one hundred and seventh meridian. A question having arisen as to the correctness of such location, S. S. Gannett, of the Geological Survey, in 1897 determined for the Indian office the true location of said reservation corner by astronomical observations.
>
> "His attempt to find a public land corner with which to connect his determination having developed the absence of such corners, an extended examination of the E. N. Darling line both east and west thereof was made by Frank A. Johnson, examiner of surveys, under the direction of this office. As a result of his investigations it became apparent that in that locality very few traces of the boundary line as established by E. N. Darling were to be found, and such as were found were not by any means on the same parallel of latitude.
>
> "The fact was developed that Darling's astronomical station No. 7, which was established near the present town of Edith, was lost, and while its approximate location was fixed by the bearings to the several mountain peaks reported by Darling, no trace of the monument itself remained.
>
> "These astronomical monuments were established by Darling as a result of a series of astronomical observations for latitude, and between these monuments the parallel was marked by corners either at mile points, or when the nature of the country was such as

not to permit the corners to be so established, then witness corners were established at accessible points.

"Astronomical monument No. 6 was established at a distance of 34 miles east of No. 7, and astronomical monument No. 8 at a distance of 27 miles west of No. 7. From astronomical monument No. 6, Examiner Johnson, in 1900, identified the Darling line westward for a distance of 15 miles, at which point all traces of the old line were lost and could not be identified in any manner, the topography not agreeing with the original notes in any particular, the old blazes disappearing and the country not being that described in the Darling field notes. The first corner identified west of this point was at a distance of about five miles, where an old corner was found, much decayed and lying on the ground, but identified as being in its original location by the bearing trees. The mile corner was about 11 chains south of the last trace of the line found to the east, and from it a portion of the line for a distance of about five miles was identified, beyond which, to the west, all traces of the mile corners had disappeared. Indications of a line were found only by means of old blazes on trees and topographic features, which themselves disappeared as the line approached the location of astronomical monument No. 7.

"When this latter point was reached, there was a difference of nearly half a mile in the locations of the line brought from the east and of the point identified as the most probable location of the monument itself, which, as before stated, had been lost. From this location west to astronomical monument No. 8 the corners established by Darling were few in number, on account of the alleged precipitous character of the country over which the line ran. Long triangulations were used, and in the distance of some 27 miles only 9 corners were established. Of these 9 corners, partial identification was made of 2 only, and upon these facts being reported to the department, this office was directed, by letter dated May 9, 1902, to furnish an estimate for the re-survey and re-establishment of the thirty-seventh parallel between the twenty-fifth and thirty second degree of longitude, in order that the same might be submitted to Congress."

In the same document there is to be found another letter from the General Land Office to the Secretary of the Interior

dated May 24, 1904, which more fully sets out conditions concerning the boundary now in controversy and the following quotation covers the whole of that letter:

"DEPARTMENT OF THE INTERIOR,
"General Land Office.

"Washington, D. C., May 24, 1904.

"Sir: The question arises as to the force and effect to be given to the survey of the south boundary line of the State of Colorado, which forms the north boundary of the Territories of New Mexico and Oklahoma, which was recently made under the act of July 1, 1902 (32 Stat. L., 574), and as to what further action is necessary in the premises.

"A recital of the history of this boundary is necessary to a full consideration of the question, and I therefore beg to submit that section 2 of the enabling act of March 3, 1875 (18 Stat. L., 574), under which the State of Colorado was admitted into the Union, fixes this boundary 'along the thirty-seventh parallel of north latitude,' this being the line which had theretofore been declared the south boundary of the Territory of Colorado in section 1, act of February 28, 1861 (12 Stat. L., 172).

"This line was surveyed and marked in 1868 by Ehud N. Darling, surveyor and astronomer, on behalf of the Government, but the accuracy of that survey was afterwards called in question, and, many of the monuments along the line having disappeared, the general assembly of the State of Colorado, by its act of April 11, 1901, authorized the appointment of a commissioner to act in conjunction with like representatives to be appointed by authority of the territorial assembly of New Mexico and your department, should such representatives be appointed, or independently if they were not appointed, for the purpose of fixing and determining 'the south boundary line of the State of Colorado, and between said State of Colorado and the Territory of New Mexico, between astronomical monument No. 6, heretofore established on the thirty-seventh parallel of north latitude and at a point on said parallel near Osier, Colo., and extending thence westward along said thirty-seventh parallel, fixed as the southern boundary line of Colorado by said act of Congress and heretofore surveyed by Ehud N. Darling

for the United States, and astronomical monument No. 8, also established by said Darling on said parallel at a point about 4 miles west of Arboles, Colo., and to re-survey and re-establish said line, as hereinbefore surveyed and established by Darling, between said monuments.'

"No representative was ever designated by your department to act in conjunction with the commissioner provided for in this act, and this office is not informed as to whether the state ever took any action thereunder.

"The condition of this line having been called to the attention of your department, an examination in the field was made by Examiner Frank M. Johnson, whose report was submitted to your department by this office on April 30, 1902. This report not only disclosed the fact that some of the astronomical monuments were missing, but showed that the line as established by Darling was not in some places located upon the thirty-seventh parallel. By your letter of May 9, 1902, you stated: 'In view of the condition of this line, as declared by this examination, and of its importance as a boundary between the State of Colorado upon the north and the Territories of New Mexico and Oklahoma upon the south, it is deemed advisable that it should be re-surveyed and re-established;' and you accordingly directed this office to at once furnish your department with an estimate 'for the re-survey and re-establishment of the thirty-seventh degree of north latitude between the twenty-fifth and thirty-second degrees of longitude west from Washington to be submitted to Congress.'

"In response to the recommendations of your department Congress by its act of July 1, 1902 (32 Stat. L., 574), made appropriation 'for the re-survey and re-establishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington * * * a calculated distance of 381 miles,' and it was pursuant to this act that the line has been re-surveyed and re-established by Howard B. Carpenter, United States surveyor and astronomer, on that parallel.

"Prior to this re-survey the town of Edith was

supposed to be in the State of Colorado, the old state boundary line being in doubt at that point. Mr. Carpenter's survey shows the greater part, if not all, of the town to be in New Mexico. An examination of the field notes and plats of this survey shows that the line established by Carpenter passes through the villages of Ortiz and La Costilla, all of which have heretofore been assumed to lie in the State of Colorado. This line is continuously marked by iron posts at mile intervals, and with eight large stone monuments marking the points of astronomical stations where observations were taken for determination of the parallel and these markings should tend to remove all doubt as to the question of jurisdiction when the line has been properly declared to be the boundary.

"The question now arises as to what further action is necessary to be taken, and in this connection the fact should be noted that the intention expressed by the general assembly of Colorado, in making provisions for the re-establishment of this boundary, does not fully coincide with the directions given by Congress. The general assembly directed the re-establishment of only a portion of this line, while Congress declared that the entire boundary should be re-established. The general assembly directed its commissioner 'to resurvey and re-establish said line, as heretofore surveyed and established by said Darling, between said astronomical monuments," while it was the intention of Congress that the line should be re-established and re-located upon the thirty-seventh parallel, regardless of any lines or monuments established by Darling.

"The power to determine controversies over boundaries arising between states, or between the National Government and any state, appears to be vested alone in the Supreme Court. Article 9 of the Articles of Confederation, 1777, declared that Congress should 'be the last resort of appeal in all disputes and differences now subsisting, or that may hereafter arise, between two or more states concerning boundary, jurisdiction, or any other cause whatever,' but no such power as this was vested in Congress by our Constitution. Its section 2, article 3, declares that the original power of the Government 'shall extend to all * * * controversies to which the United States shall be a party; to controversies between two or more states,' etc., and under this clause the Supreme Court has repeatedly as-

serted and exercised its original jurisdiction in hearing and determining controversies over the boundaries between states. (See R. I. v. Mass., 12 Pet., 657; N. J. v. N. Y., 5 Pet., 284; Mo. v. Iowa, 7 How., 606; Fla. v. Ga., 17 How., 478; Ala. v. Ga., 23 How., 505; Va. v. W. Va., 11Wall., 39; Mo. v. Ky., 11 Wall., 395; Ind. v. Ky., 136 U. S., 479; Neb. v. Iowa, 143 U. S., 359; Va. v. Tenn., 148 U. S., 503.)

"These, however, were controversies arising between individual states, and it was not until the case of United States v. Texas was considered (143 U. S., 621) that the Supreme Court declared that it had original jurisdiction in a suit in equity brought by the United States against a state to determine the boundary line between that state and a territory of the United States, and that that question is susceptible of original determination. A careful reading of this case discloses the opinion of the Supreme Court to the effect that the National Government in its relation to state governments occupies the status of a state, and that any controversies which arise between it and states over the boundaries between states and territories must be settled by a proper action in that court, and nowhere have I been able to find that Congress has ever been recognized as having any power to determine such a question. Congress would, of course, have the power to fix or alter boundary lines between territories, but after a boundary line of a state has been solemnly declared by its enabling act it appears that the Supreme Court is the only branch of the Government that has power to determine controversies thereon.

"If this conclusion is correct, then neither Congress, by directing the survey of this line, nor your department, by causing that survey to be made and approved, has performed an act which is binding upon the State of Colorado in the absence of its recognition or ratification of those acts.

"It is true that this case does not present a question exactly like the question which arises between the Government and Texas over the boundary in dispute between them. There it was a question as to whether one river or another formed a boundary line, while here there can be no dispute as to the fact that the line between Colorado and New Mexico, should be on the thirty-seventh parallel, yet there may be a dispute as to whether the monuments marking the line established

by Carpenter are located upon that parallel, and until all possibility for the arising of such a dispute has been eliminated the Government can not with safety recognize the boundary as having been established beyond controversy.

"In view of the fact that the executive branch of the Government has no inherent powers in this matter, and has only acted in obedience to the will of Congress in making this survey, it is the opinion of this office that the result of that survey should be reported to Congress for its consideration and to form the basis of any negotiations which it may deem necessary to induce the State of Colorado to adopt the line so established as the true boundary line or to have the matter determined by proper action in the Supreme Court.

"Very respectfully,

"W. A. RICHARDS, *Commissioner.*

"THE SECRETARY OF THE INTERIOR."

The same document contains a letter from the Secretary of the State of Colorado addressed to the Secretary of the Interior inquiring if the boundary line between Colorado and New Mexico had been established by the United States Government, in response to which the Department sent the Secretary of State a copy of a report by the Acting Commissioner of the General Land Office dated July 28, 1904, which is also printed in the same document.

The remainder of the letter gives information about the contract with Carpenter, his survey thereunder, and as to inaccuracies in the Darling line so far as it could be found.

Inasmuch as the bill of complaint and answer show the making of the two surveys, it does not seem improper thus to refer to public documents which throw light on the subject of those surveys, and which may assist the court in the consideration of the propriety of the matter in the answer which is assailed by the motion to strike out.

Moreover, by reference to Chapter 37 of the Colorado Session Laws of 1901, it will appear that even Colorado was not

satisfied with the Darling survey nor acquiescent as to its correctness.

Briefly, if any such status existed as to this boundary as is described in the case of Missouri vs. Iowa, 7 How., 660, as to the boundary there in question, there never would have been any Carpenter survey, official in character and approved by the Land Office, and the court may, with propriety, take notice of anything relating thereto in the public records which can inform the judicial mind.

It is respectfully submitted that the motion to strike out parts of the answer, should be granted.

FRANK W. CLANCY,
Special Counsel for Complainant.

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Office Supreme Court, U. S.
FILED
APR 1 1924
WM. R. STANSBURY
CLERK

SUPREME COURT OF THE UNITED STATES

October Term, 1923

Original. No. [illegible]

THE STATE OF NEW MEXICO

v.

THE STATE OF COLORADO

Motion for leave to file Replication and Answer to Cross-Bill, Consent of Defendant and said Replication and Answer.

[illegible]
Special Counsel for Complainant.

IN THE SUPREME COURT OF THE UNITED STATES.

October Term, 1923.

Original, No. 25.

THE STATE OF NEW MEXICO

v.

THE STATE OF COLORADO.

MOTION.

Now comes the complainant by its special counsel, and moves the Court for leave to file its replication to the amended answer of defendant and its answer to the amended cross bill of defendant.

THE STATE OF NEW MEXICO
By Frank W. Clancy,
Its Special Counsel.

It is hereby stipulated and agreed by the State of Colorado that the complainant may have leave to file herein its replication to the amended answer of defendant, and its answer to the amended cross-bill of defendant, and the defendant acknowledges receipt of a copy of foregoing motion of complainant for leave to file said replication and answer, and waives any other or further notice of said motion and consents that the same may be submitted and granted without further delay.

THE STATE OF COLORADO
By Wayne C. Williams,
Its Attorney General
Charles Roach,
Deputy Attorney General
Oliver Dean,
Assistant Attorney General
Delph E. Carpenter,
Of Counsel for the State of Colorado.

IN THE SUPREME COURT OF THE UNITED STATES.

October Term, 1923.

Original, No. 25.

THE STATE OF NEW MEXICO

v.

THE STATE OF COLORADO.

The replication of said complainant to the Amended Answer of said defendant.

This repliant, saving and reserving to itself all and all manner of advantage of exception which may be had and taken, to the manifold errors, uncertainties and insufficiencies of the Amended Answer of the said defendant, for replication thereunto, saith that it doth and will aver, maintain and prove its said bill to be true, certain and sufficient in the law to be answered unto by said defendant, and that the Amended Answer of the said defendant is very uncertain, evasive and insufficient in the law to be replied unto by this replicant; without this, that any other matter or thing in the said Amended Answer contained material or effectual in the law, to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied, is true; all which matters and things this replicant is ready to aver, maintain and prove, as this honorable court shall direct, and humbly prays as in and by its said bill it hath already prayed.

THE STATE OF NEW MEXICO

By Frank W. Clancy,

Its Special Counsel.

The answer of the said complainant, the State of New Mexico, to the Amended Cross-bill of the said defendant the State of Colorado.

The said complainant, the State of New Mexico, hereby waives the issuance and service of any process to require it to appear and answer the said cross-bill, and now and at all times hereafter reserving all manner of benefit and advantage of exception to the many errors and insufficiences in said amended cross-bill contained for answer thereunto, or unto so much or such parts thereof as this complainant is advised is material for it to make answer unto; answers and says that it denies that the true boundary line between plaintiff and defendant is described in defendant's amended answer and denies that such true boundary is fully or correctly shown or delineated in the field notes or survey made in 1868 by Ehud N. Darling, or in the field notes or survey of John J. Major, or in the field notes or survey of Levi S. Preston, but it admits that Howard B. Carpenter in making his survey destroyed and obliterated some of the monuments and corners established by said Darling in making his said survey, as he, the said Carpenter, was instructed and ordered to do by the acting Commissioner of the General Land Office in the special instructions by said acting Commissioner given to said Carpenter under date of July 7, 1902; without this, that any other matter or thing in said amended cross-bill contained or charged, material for it to make answer to, and not herein sufficiently answered, avoided or denied, is true to the knowledge or belief of this complainant.

All which matters and things this complainant is ready to aver and prove as this court shall direct and prays that said amended cross-bill be dismissed.

THE STATE OF NEW MEXICO

By Frank W. Clancy,

Its Special Counsel

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WM. R. STANSBU
CLERK

IN THE

Supreme Court of the United States

Original. No. 25. ~~12~~ 4

THE STATE OF NEW MEXICO

v.

THE STATE OF COLORADO

THE AMENDED ANSWER AND CROSS-BILL OF THE STATE OF COLORADO TO THE BILL OF COMPLAINT OF THE STATE OF NEW MEXICO.

WAYNE C. WILLIAMS,
Attorney General of Colorado.

CHARLES ROACH,
Deputy Attorney General.

OLIVER DEAN,
Assistant Attorney General.

Counsel for Defendant, State of Colorado.

[illegible] E. CARPENTER,
Of Counsel.

Clark QUICK Printing Co., Lawrence 3122-24, Denver, Colo.

IN THE

Supreme Court of the United States

Original, No. 25.

THE STATE OF NEW MEXICO

v.

THE STATE OF COLORADO

To the Honorable the Chief Justice and Associate Justices of the Supreme Court of the United States:

The Amended Answer and Cross Bill of the State of Colorado to the Bill of Complaint of the State of New Mexico.

And now comes the State of Colorado, and for its amended answer, filed by leave of this Court, to said bill, says:

I.

This defendant admits that the ground upon which the Court's jurisdiction of the matters set forth in the bill of complaint depends, is that the said bill sets out a controversy between two states of which this Court has original jurisdiction.

II.

This defendant admits that by the legislation of Congress, and by the Constitution of the State of New Mexico under which the said State was admitted into the Union of States, the northern boundary line thereof extends along the 37th parallel of north latitude from the intersection of said parallel with the 32nd meridian of longitude west from Washington in an easterly direction to the point where said

parallel of latitude intersects the 103rd meridian of longitude west from Greenwich, and avers that the State of New Mexico was admitted into the Union of States on the 5th day of January, 1912.

III.

This defendant admits that on the 7th day of July, 1902, Howard B. Carpenter, a United States Surveyor, entered into a contract with the United States to re-survey, re-establish, and re-mark the boundary line between Colorado and the Territories of New Mexico and Oklahoma, and that in pursuance of said contract the said Carpenter did thereafter proceed to re-survey, re-establish and re-mark the said boundary line as is shown by the record and field notes of his work, and admits that said field notes were approved by the then Commissioner of the General Land Office; but defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by either the State of Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm the said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which passed the Senate and the House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with his objections thereto, which Resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter survey, and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is attached to Colorado's original answer on file herein, and by reference thereto is hereby made a part hereof.

IV.

This defendant denies that the line surveyed and established by the said Carpenter, as shown by his field notes, is the true or correct boundary line between the said two states; admits that in disregard of said Carpenter line it has exercised jurisdiction over a considerable amount of territory south of said Carpenter line, and has levied and collected taxes upon property south of said line, and through its Courts, has exercised both civil and criminal jurisdiction over persons and property lying south of said line, but denies that said acts, doings, pretenses or claims of the State of Colorado, or ary of the same, are contrary to equity or good conscience or tend to the manifest or any wrong, injury or oppression of the State of New Mexico, or of its citizens or owners of property within its boundaries, or that said acts or any thereof were or are unlawful or in usurpation of the jurisdiction, rights or authority of said State of New Mexico.

V.

(a) For further defense to said bill of complaint, this defendant avers that in the Act of Congress, approved March 3rd, 1875, enable the People of Colorado to form a Constitution and State Government, and be admitted into the Union (18 Statutes at Large, 474); and also by the Constitution adopted by the vote of the People of Colorado, and under which the State of Colorado was admitted into the Union by Proclamation of President Grant, August 1st, 1876, the 37th parallel of north latitude between the 25th and 32nd meridians of longitude west from Washington, was fixed as the southern boundary line of that State.

(b) That in the year 1859, Captain Macomb, U.S.A., of the Topographical Bureau, under direction of the War Department, established a stone monument, known as the Macomb Monument, to mark the intersection of the 37th parallel of north latitude with the 103rd meridian of longitude west from Greenwich.

(c) Pursuant to authority of an Act of Congress, approved March 2nd, 1867 (14 Statutes at Large, 466), and under a contract with the Commissioner of the General Land Office of the United States, Ehud N. Darling, United States Surveyor and Astronomer, by the most approved methods of the time, surveyed and established in the year 1868, the 37th parallel of north latitude so far as it constituted the boundary line between the Territories of Colorado and New Mexico, from said Macomb Monument westward, and marked the same upon the earth's surface by mile corners and monuments, as appears by the record and field notes of his work, a copy of which is attached to the original answer filed herein by said State of Colorado and by reference thereto is hereby made a part hereof, which field notes of said survey were examined and approved on the 30th day of April, 1869, by the Honorable Joseph S. Wilson, Commissioner of the General Land Office, as appears by his certificate to that effect attached to said field notes.

(d) On June 2nd, 1873, John J. Major, a surveyor and astronomer, entered into a contract with W. W. Curtis, acting Commissioner of the General Land Office of the United States, among other things, to well, truly and faithfully, by astronomical observations and geodetic measurements, establish in its true position so much of the south boundary of the Territory of Colorado as lay between the 25th and 103rd meridians of longitude west of Washington and Greenwich, respectively, as defined in Section 1 of the Act of Congress entitled "An Act to provide a temporary government for the Territory of Colorado" approved February 28, 1861, Stats. at Large, Vol. 12, page 172, and in pursuance of said contract, said Major did thereafter proceed to survey, establish and mark the line of said boundary on the surface of the earth, beginning at the southwest corner of the State of Kansas, and running westerly to what is known as the Johnston Monument (which is about one mile and sixty-two chains westerly from said Macomb Monument), as appears by the record and field notes of his work, a copy of which record and field notes beginning with the opening sentence

thereof and including the part covering said survey from the said Major's 52.5 mile post to said Macomb Monument, together with said Major's oath of his performance of said contract, and the certificate of examination and approval by the Commissioner of the General Land Office of the astronomical observations and computations as well as field notes of the survey of said Major under said contract, is hereto attached and made a part hereof, and which record and field notes, having been examined and found correct, were approved July 29, 1874, by the Commissioner of the General Land Office, as appears by his certificate to that effect attached to said record and field notes. That said 52.5 mile post of said Major is about 21.97 chains easterly from the Preston Monument, hereinafter mentioned and described, and said mile post is the nearest determinable point in said field notes, easterly from said Preston Monument.

(e) In the month of June, 1900, Levi S. Preston, a United States Deputy Surveyor, working under, and in pursuance of an agreement dated October 25, 1899, between Quinby Vance, Surveyor General of the United States for New Mexico, acting for and in behalf of the United States, and said Preston, and under and in pursuance of certain instructions given to him by the said Vance in connection with and made a part of said contract, which contract and instructions had theretofore and on February 2[illegible], 1900, been approved by the Commissioner of the General Land Office of the United States, retraced, re-marked and re-established the survey and line, established by said Major in 1874, from said Macomb Monument easterly for a distance of two miles and 40.53 chains to its intersection with the Cimarron meridian established by Chaney and Smith in 1881, at which point, in pursuance of said contract and said instructions, the said Preston set up a monument (which is sometimes called the Preston Monument) as and for the northeast corner of the Territory of New Mexico and as and for the intersection of said 37th paralled with said Cimarron meridian, which said Cimarron meridian is the boundary line between the States of New Mexico and Oklahoma, and did

establish said portion of said Major line as the north boundary of New Mexico between said Macomb Monument and said Preston Monument; and that thereafter and on May 7, 1901, the field notes and survey of said Preston for said line were accepted and approved by said Quinby Vance as U. S. Surveyor General for New Mexico. A copy of said Preston's record and field notes of his said survey of said portion of the boundary between Colorado and New Mexico is hereto attached and made a part hereof.

(f) Defendant avers that for more than thirty (30) years, the position of said Darling line remained undisputed, and the correctness of its technical execution unquestioned, and as so established the said Darling line has been generally recognized and acquiesced in by both of the States herein involved, and accepted by the Federal government, and is now recognized and accepted by the Federal government as the true and subsisting boundary line between Colorado and New Mexico from said Macomb Monument westward; and by reason of the right and title acquired as hereinbefore set forth, this defendant from the time said boundary was so established in 1868 to the present time, has held lawful and rightful possession of and exercised dominion and sovereignty, and now claims the same, over the territory down to the said southern boundary line as established by the said Darling, and no farther; county lines have been formed, towns and settlements have grown up, school districts, election districts, voting precincts, land districts and water districts have been created with reference to said line, public officers have been elected, property has been assessed, taxes levied and collected under the authority of the State of Colorado, and its courts of both civil and criminal jurisdiction have exercised unquestioned jurisdiction in all places north of said boundary line and the State of New Mexico has exercised like jurisdiction in all places south of said line. County maps, State maps, and maps prepared by the Federal government have for more than forty years last past delimitated said boundary according to said Darling survey, and government post offices have

been established as being in Colorado when above said line, and in New Mexico when below sa l line, and public land surveys on both sides of said line were closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico fixed by reference to said line.

(g) That since 1874 the said Major survey and marking of said 37th parallel has been the recognized and accepted south boundary of Colorado from the southwest corner of Kansas westward to said Macomb Monument, and since the acceptance of the Preston survey, retracement and re-marking of the Major line, in the year 1901, as hereinbefore alleged, said Major line as retraced and re-marked by Preston between said Macomb Monument and said Cimarron meridian has been and now is the boundary between Colorado and New Mexico from said Macomb Monument to said Preston Monument.

(h) The 37th parallel of North latitude, as established by Howard B. Carpenter, passes through several towns lying wholly within the State of Colorado, according to the boundary as originally surveyed by Darling, and along the entire line there is a material, and in many places, excessive variance between the lines of said two surveys, and the effect of said Carpenter survey if declared the true boundary line would be to remove a considerable strip of territory which is now within the State of Colorado, according to the Darling survey, and place it in the State of New Mexico. The line attempted to be established by said Carpenter passed 93 links south of said Macomb Monument and 110 links south of said Preston Monument, and departed from the boundary lines established by both Darling and Preston, and said Carpenter line, if adopted, would remove a considerable strip of territory from the State of New Mexico in the vicinity of said Macomb and Preston Monuments and place it in the State of Colorado.

(i) The said Carpenter survey consisted of a new fixation of the 37th parallel of north latitude independent of the

line established by Darling in 1868, and by Major in 1874 (retraced and re-established by Preston in 1900), and not only failed of confirmation by Congress, but the Federal Government up to the present time has declined to recognize the said Carpenter survey as the true boundary line between the said two States, and on the contrary has accepted and still accepts the said Darling and Major surveys as the true and correct boundary line between said two States.

All of which matters and things as hereinbefore stated, this defendant avers to be true and this defendant pleads the same in bar to the bill of complaint, and prays the judgment of the Court whether it shall further answer said bill.

Wherefore, having answered fully all the matters in plaintiff's bill set forth, defendant prays this Honorable Court that the prayer thereof be not granted, but that the lines surveyed, established and marked by the said Darling from said Macomb Monument westward, and the line surveyed, established and marked by said Major, and retraced and re-marked by said Preston, between said Macomb Monument and said Preston Monument, be by this Honorable Court decreed to be the true boundary line between the said two States, and that the said bill be dismissed and the defendant go hence with its costs in this behalf incurred, and that this defendant have such other and further relief as may be found necessary and as to the Court shall seem meet and proper.

AMENDED CROSS-BILL.

And now by way of amended cross complaint and for affirmative relief against the plaintiff, your orator, the State of Colorado, shows to the Honorable the Chief Justice and Associate Justices of the Supreme Court of the United States:

That the true boundary line between plaintiff and defendant is described in the foregoing amended answer and is fully and correctly shown and delineated in the field notes and survey made in 1868, by Ehud N. Darling, attached to the original answer of the State of Colorado herein, and by reference made a part of the amended answer of the State of Colorado and a part of this amended cross-bill, and in the field notes and survey of said John J. Major and in the field notes and survey of said Levi S. Preston, retracing, remarking and re-establishing said Major line from the Macomb Monument to the Preston Monument on the Cimarron meridian, attached hereto and made a part of this amended cross-bill as well as a part of said amended answer; and for this amended cross-bill defendant adopts the allegations of fact contained in the foregoing amended answer and makes the same a part of this amended cross-bill, as fully and to all intents and purposes as if the said allegations were set out in detail in this amended cross-bill; and defendant further avers the said Carpenter in making his said survey destroyed and obliterated many of the monuments and corners established by said Darling in making his said survey.

Wherefore, your orator, to the end that it may obtain the relief to which it is justly entitled, and avoid future controversies in reference hereto, prays the Court to grant unto your orator such process of this Honorable Court as may be appropriate to require the plaintiff, the State of New Mexico, to appear and answer (not under oath, answer under oath being hereby expressly waived) to the several allegations in this amended cross-bill contained; and that upon the final hearing hereof the true southern boundary

line of the State of Colorado and the northern boundary line of the State of New Mexico, be declared and decreed by this Court to be the line established as aforesaid by Ehud N. Darling in the year 1868, and by said Major and Preston in 1874 and 1900 respectively, and as the same is shown by the field notes of their work, attached hereto and to the original answer of the State of Colorado herein, and made a part hereof, and that the defendant have such other and further relief as may be found necessary in order to correctly restore, re-establish and re-mark said lines as the boundary line between the plaintiff and defendant, and as to the Court shall seem meet and proper, and that the defendant have and recover its costs herein incurred.

THE STATE OF COLORADO

By WAYNE C. WILLIAMS,
Its Attorney General.

CHARLES ROACH,
Deputy Attorney General.

OLIVER DEAN,
Assistant Attorney General.

DELPH E. CARPENTER,
Of Counsel.

FIELD NOTES of John J. Major, U. S. Surveyor and Astronomer, of a portion of the southern boundary of Colorado.

"Ran west from the corner of Kansas, Colorado and Indian Territory * * *.

* * * *

"* * * Planted a seasoned pine post 5 feet
52⁵M x 5 in x 5 deeply marked "C, 37 L, 1874. Built mound of earth & stone dug trench. Bearings. A butte S by E distant ¾ mile. A butte N by E distant about 17 chains. Thence gradual decline through valley, land level, soil improving to end of 80 chs. Made excavation planted a seasoned
53⁵M pine post 5 ft x 5 x 5 in deeply marked "C "37 L, 1874. Built mound of earth with trenches & pits. Bearings Mountain butte S 33° 30′ W distant 1 mile. Lone symetrical butte N 77° 40′ E distant ¾ miles. Thence through valley, the latter part of mile just north of high mountain; 80 Chs terminating on north edge of mountain side among
54⁵M very large boulders. Could get no bearings. Built monument of stone; marked large boulder on South of line, but north face "37 L, another north of line and south face "C, 1874. Mag. Variation 13° E at 2 P. M. Begin very steep ascent 260 feet to top of bluff and over narrow neck of ridge putting down N by E. 20 chs to edge of steep side of mountain, almost perpendicular descent 200 ft. to small valley at 40 chs. This valley heads a short distance South and bears down N.N.E to a larger one that comes from W to E, then turns to S.E. and S. Thence up mountain side over rocky slope 62.50 chs near north end of rocky cliff cross and descend to small valley and ascend
Macomb's Monument 250 ft to east edge of mountain and *Capt. Macomb's monument* to mark the 103d Meridian.
55M It is a large stone monument 10 feet in diameter

22½c at base 8 feet high and cap stone marked 'C.N.M. IT.1868'. Removed the monument for further information but found none. Mr. Darling had built over Macomb's original monument. Rebuilt this monument so that it stands as Darling left it. . . .

. . . .

"I, John J. Major, U. S. Astronomer & Surveyor do solemnly swear that in pursuance of a contract with the Commissioner of the General Land Office bearing date June 2, 1873, and in strict conformity to the Specjal Instructions of the Commissioner have faithfully surveyed and marked that portion of the Southern Boundary of Colorado, included between the 25th Meridian west from Washington and the 103d Meridian west from Greenwich, also that portion of the Boundary of New Mexico embraced between the parallels of 36° 30′ & 37° and do further swear that the foregoing are the true and original field notes of such survey.

John J. Major
U. S. Astronomer & Surveyor.

"Subscribed by said John J. Major, U. S. Astronomer & Surveyor and sworn to before me, a justice of the peace of the District of Columbia this 25" day of July, A. D. 1874.

J. Tyler Powell (SEAL)
Justice of the Peace.

"Department of the Interior
General Land Office.

Washington, D. C. July 29, 1874.

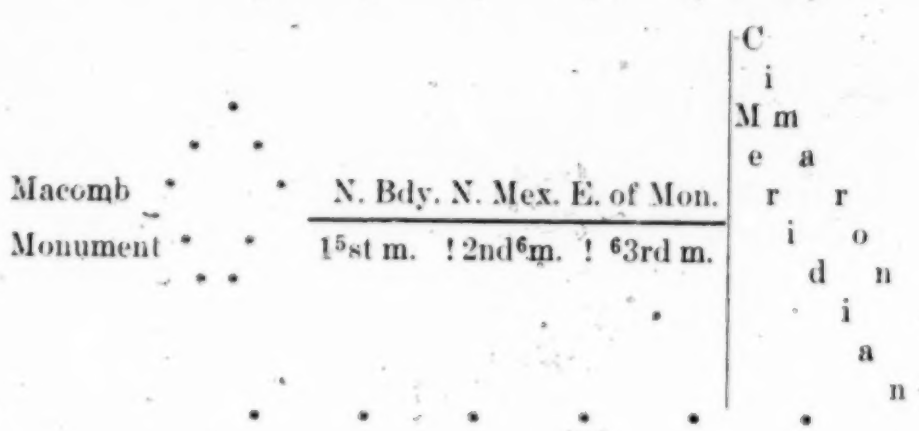
The foregoing astronomical observations and computations as well as field notes of the survey of that portion of the Southern Boundary of Colorado Territory included between the 25th Meridian West from Washington and the 103rd Meridian West from Greenwich, also of that portion of the Eastern boundary of the Territory of New Mexico lying between the 36° 30′ and 37° parallel of North Latitude, as executed by John J. Major, Astronomer and Surveyor, in conformity with his contract with the Commissioner of the General Land Office, bearing date June 2d, 1873, having been examined and found correct, are hereby approved.

S. S. Burdett
Commissioner."

"FIELD NOTES
OF THE SURVEY OF
A PORTION OF THE BOUNDARY LINE
BETWEEN COLORADO
and
New Mexico.

As Surveyed by
Levi S. Preston, U. S. Deputy Surveyor,
Under his Contract No. 336, dated October 25, 1899.

Survey commenced.....June 28, 1900;
Survey completed.....June 29, 1900;



CHAINS

"RETRACEMENT OF PORTION OF N. BD'Y
OF NEW MEXICO.

From the point on State line bet. Rs. 36 and 37 E., whence the Macomb monument, heretofore described, bears West 48.43 chs. dist. in plain sight; I turn angle of 90° and run

West on random line on boundary line bet. Colorado and N. Mexico.

48.43 To monument established by Capt. Macombe in 1859 and heretofore described.

127.93 To 1st mile stone West of Macombe monument, Sandstone 8+9+28 ins. in mound of stones marked 1 M. on E., N. M. on S. and Col. on N. Face and

CHAINS

properly witnessed by mound of stone, bears N. 20 lks. dist.

196.58 The monument established by Lt. Col. Johnson in 1857, bears N. 70 lks. dist.; a mound of earth 15 ft. base, 1 ft. high with grass growing on same and surrounded by a circular trench 24 ft. in diam. also find sandstone 24+10+5 ins. lying near, marked 103° L., 37° L., N. M. MAJOR 1874, evidently stone set in Johnsons Monument by Major in 1874.

I reset stone in center of mound so that it reads

'103° L. on E.
'1874' N. M. Major on W.

37° L. on N. as described in field notes furnished me by the Surveyor General. I therefore conclude that the corner established by Macomb in 1859 was formerly used as the N. E. Cor. of New Mexico in running the Colo. and N. M. bdy. I find the course from Macomb Monument to first mile to be N. 89° 51′ W. 79.50 chs. Thence N. 89° 35′ W. 68.65 chs. to Johnson Monument.

June 28th, 1900.

"SURVEY OF A PORTION OF N. BDY. OF N. MEX.

On June 29, 1900, I set up at the monument established by Capt. Macomb, heretofore described at Oh. 47m. a. m. to 1h. Om. a. m., 1 m.t., I observe Polaris at Eastern elongation, in accordance with manual of instructions and mark the line thus determined by tack in peg set firmly in ground 5 chs. N. of my station.

At 7h. a. m., 1 m.t., I lay off azimuth of Polaris 1° 32′ to the West and drive tack in peg 5 chs. North on the true meridian thus established. The magnetic bearing of said true meridian at 7 a. m., 1 m.t., is N. 12° 24′ W. The angle thus

CHAINS

determined reduced by table on page 100 of the 1894 manual gives mean mag. decl. 12° 21′ E. I then turn angle 90° and run

East on true line on boundary line bet. Colorado and New Mexico.

1.00 E. edge of mesa, bears N. and S.
Descend.

13.43 Arroyo 50 links wide, in bottom of canon, course N. Ascend.

18.00 Point of mesa bears N. and S.
Descend.

33.00 Arroyo in bottom of canon 75 links wide, course S. Ascend.

48.43 To point of intersection of line bet. Rs, 36 and 37 E. heretofore described.
Ascend.

56.33 W. edge of mesa, bears N. W. and S. E.; thence over mesa covered with scattering pinons.

58.40 E. edge of mesa, bears N. W. and S. E.
Descend slope.

68.00 Bottom of slope, bears N. and S.

80.00 Set sandstone 20+15+9 ins. 15 ins. in ground for 1 mile stone on North boundary of New Mexico East of the Macomb monument at a point (7) links N. of tangent to parallel marked 1 M. E. on W. N. M. on S. and Col. on N. faces; dug pits 24+18+12 ins. E. and W. of cor. crosswise of line 4 ft. dist. and raised mound of earth and stones 4 ft. base. 2 ft. high N. of cor.
Land mountainous.
Soil 4th and 3rd rate.
Timber scattering pinons and cedars.
Mountainous land. 80 chs.

Thence East on true line on 2nd Mile East of Macomb monument, along foot of mesa.

CHAINS

30.00 Amongst large boulders at foot of North slope of mesa.

50.00 Leave large boulders.

80.00 Set sandstone 20+15+6, ins. 15 ins. in ground for 2nd mile stone on N. bdy. of N. Mex. East of Macomb monument at (2.8) links North of tangent to parallel, marked 2 M. E. on W., N. M. on S. and COL on N. faces; dug pits 24+18+12 ins. E. and W. of cor. 4 ft. dist. crosswise of line and raised mound of earth 4 ft. base, 2 ft. high N. of cor.
Land rolling valley and mesa slope.
Soil 2nd and 3rd rate.
No timber.
Mountainous land 50. chs.

Thence East on true line on fract'l 3rd mile East of Macomb monument over rolling valley.

40.53 Intersect Cimarron Meridian 14.11 chs. South of monument erected by Smith and Chaney. A sandstone 50+14+14 ins. above ground marked, '103 W. L.' on S., '37 N. L.' on E. 'COLORADO' on N., and '1881' on W. faces, as described in field notes furnished me by the Surveyor General, at a point (5) links N. of tangent to parallel. I set sandstone 60+12+12 ins. 36 ins. in ground, for closing cor. of boundary line between Colorado and New Mexico, on Cimarron Meridian as per special instructions from the Surveyor General, marked 'N. E. Cor. N. M.' on S.,

'C. C.

'C. M.' on E., 1900' on W. and 'COLO.' on N. faces; dug pits 30+24+12 ins. N. and S. of cor. 4 ft. dist. and W. of cor. 8 ft. dist. and

CHAINS

raised mound of earth and stones 4 ft. base, 2 ft. high W. of cor.

From + marked on top of stone the cor. to secs. 18 and 19 T. 6 N., R. 1 E. in Oklahoma, which is in plain sight, bears S. 1 M. 28.60 chs. dist.

A Butte bears S. 59° 09′ E. 3 miles dist.

A Butte bears S. 40° 35′ E. 1½ M. dist.

Sugar Loaf butte bears S. 62° 50′ W. 1½ miles dist.

Land rolling valley.

Soil 2nd rate.

Good grass.

No timber.

June 29, 1900.

"FINAL OATH OF U. S. DEPUTY SURVEYOR.

I, Levi S. Preston, U. S. Deputy Surveyor, do solemnly swear that in pursuance of a contract received from Quinby Vance, Esq., U. S. Surveyor General for New Mexico, bearing date of the twenty-fifth day of October, 1899, I have well, faithfully, and truly in my own proper person, and in strict conformity with the instructions furnished by the U. S. Surveyor General for New Mexico, the Manual of Surveying Instructions and the laws of the United States, surveyed all those parts or portions of the boundary line between Colorado and New Mexico, and retracement of part of the N. bdy. of New Mexico, of the principal base and meridian in the Territory of New Mexico, which are represented in the foregoing field notes as having been surveyed by me and under my direction; and I do further solemnly swear that all the corners of said survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions and the special written instructions of the U. S. Surveyor General for New Mexico, and in the specific manner described in the

field notes, and that the foregoing are the *true* field notes of such survey; and should any fraud be detected I will suffer the penalty of perjury under the provisions of an act of Congress approved August 8, 1846.

Levi S. Preston,
U. S. Deputy Surveyor.

Subscribed by said Levi S. Preston and sworn to before me this 30th day of July, 1900.

A. L. Hobbs, Probate Clerk.
(SEAL) By W. M. Oliver, Deputy.
R. S.

"APPROVAL.

Office of the U. S. Surveyor General.
Santa Fe, N. Mex. May 7" 1901.

The foregoing notes of the survey of a portion of the Boundary Line between Colorado and New Mexico, and retracement of a portion of the North Bd'y of New Mexico, as executed by Levi S. Preston, U. S. D. S., under his Contract No. 336, dated Oct. 25, 1900 [1899], having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Quinby Vance,
U. S. Surveyor General.

"I certify that the foregoing transcript of the field notes of the survey of a portion of the boundary line between Colorado and New Mexico, and retracement of a portion of the North boundary of New Mexico, in the Territory of New Mexico, has been correctly copied from the original notes on file in this office.

Quinby Vance,
U. S. Surveyor General."

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BRIEF FOR COMPLAINANT

IN THE SUPREME COURT OF THE UNITED STATES

October Term, 1924.

Original, No. 8, 4 1.

STATE OF NEW MEXICO

vs.

STATE OF COLORADO

Frank W. Clancy,
Counsel for Complainant.

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IN THE SUPREME COURT OF THE UNITED STATES

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO

STATEMENT OF CASE

This is an original suit in equity, brought in this court to ascertain and settle the boundary between the two states. The bill of complaint sets up that the boundary line between the two states, by the legislation of Congress under which Colorado was admitted into the Union and by the constitution of New Mexico, extends along the 37th parallel of north latitude from the 32nd meridian of longitude west from Washington in an easterly direction to the 103rd meridian of longitude west from Greenwich. (Record, p. 2.) This is admitted by the answer. (Record, p. 209.) The bill further shows that on July 7, 1902, Howard B. Carpenter, a surveyor, entered into a contract with the United States to re-survey, re-establish and re-mark the boundary line between Colorado and the territories of New Mexico and Oklahoma, and that in pursuance of the contract and instructions given to him by the acting Commissioner of the General Land Office, he did re-survey, re-establish, and re-mark said boundary line as will appear by the record and field notes of his work, a copy of which together with a copy of said instructions, so far as the record and field notes cover that portion of the 37th parallel which constitutes the boundary between Colorado and New Mexico, is attached to the bill as a part thereof, which field notes were approved by the Com-

293-4.) while Darling's line is 331 miles plus 60 chains in length (Record, pp. 450-60.) It should be borne in mind that Darling's line was surveyed from east to west. (Record, pp. 304-5), and Carpenter's line, pursuant to specific instructions, was surveyed from west to east. (Record, pp. 4 to 7.)

The answer next avers that for more than 30 years the Darling line remained undisputed and has been generally recognzied by both of the states and by the Federal Government as the true boundary line, and sets up in some detail matters in support of that general assertion, and the disastrous effect of adopting the Carpenter line. Complainant made a motion to strike out parts of the answer and that motion and the argument in support thereof, appear at pages 463 to 468 of the Record, but the Court denied the same "without prejudice to its being presented when the case is reached on the merits." (Record, p. 474.)

This motion is therefore now presented for consideration, although, in part, it may not be necessary for the court to consider it in view of the facts disclosed by the testimony. It was based upon the idea that the only issue proper to be considered was the location, on the earth's surface, of the 37th parallel, but defendant's position seems to be that it is immaterial where that parallel may be, and that the boundary must be where the Darling survey placed it, no matter whether that survey is on the parallel or not, and no matter whether that survey was complete and correct within itself, complainant containing that it is not accurate, discredits itself on its face and is impossible of re-location on the parallel.

Defendant filed a cross-bill with its answer, asserting the correctness of the Darling line, and praying that the boundary be decreed to be that line.

Much later, with the consent of complainant, defendant filed an amended answer and cross-bill to cover a part of the boundary line, short in length, east of what is known as the Macomb monument which was Darling's initial point (Record, p. 304) for a distance

POINTS AND AUTHORITIES

FIRST

The Carpenter survey is, by expert testimony, shown to be excellent and of the highest order.

I do not anticipate that this will be seriously controverted, as defendant's position seems to be that the character of Carpenter's work is immaterial. (Record, p. 500.) and I will therefore merely give some references to the uncontradicted testimony which supports this point, as follows:

Testimony of Arthur D. Kidder, at pages 542-3, 548 o, 550, 559

Testimony of Frank M. Johnson, at page 569

SECOND

The Darling Survey is grossly inaccurate.

Counsel for defendant, I imagine, will say that this is immaterial, their position being that it makes no difference whether the Darling line is correct or not, because it has been recognized for so long a time as fixing the boundary, that it makes no difference whether or not it is on the 37th parallel or somewhere else or whether it is actually existent or not.

Complainant contends that the testimony shows, without contradiction, that the Darling line is not only inaccurate, but in great part was never actually run on the ground.

By the testimony of Frank M. Johnson, Supervisor of Surveys, at page 569 of the record, and of Monzo E. Compton, formerly

erly assistant Supervisor of Surveys at page 623 of the Record it is clearly shown that running west from his astronomical Monument No. 6, Darling appears to have run west until he reached the Navajo river, when he discovers that that he is far south of the parallel, and moved up about 35 chains to the northeast, and there establishes his astronomical monument No. 7 and makes the statement that he corrects his line back to his 101st mile corner, but did not actually do so although his field notes show a running of his line back eastwardly to the 101st mile. These witnesses testify positively that he did run such an east line as far back as Ewell Cañon, a distance of 2 or 3 miles and no farther, while his notes show (Record pp. 409 to 417) a running east from 214th mile back to the 101st mile, a distance of 23 miles. In other words he made a purely imaginative and fictitious record, and never connected his monuments 6 and 7. An attempt was made in 1917 to restore the portion of the Darling line up to the 7th monument, the result of which is shown on Complainant's Exhibit No. 11 following printed page 714 of the record.

EX PEDE PARTEELAM DARLING?

That may not be good Latin, but it conveys the idea, and so does *falsus in uno, falsus in omnibus.*

But no matter how demonstrably false is Darling's work, defendant says it has ripened into a perfect boundary and cannot now be disturbed, while complainant contends that it falls within the exception indicated by the Commissioner of the General Land Office, in his letter at page 528 of the Record, where he says that "the so called Darling location which was executed under proper Federal authority and duly accepted, was in the absence of fraud or gross irregularity, conclusive upon the Territories."

Here we have both fraud and gross irregularity.

It appears from the Record (pp. 502-3) that Frank M. Johnson, then examiner of surveys, in 1896, made an exhaustive examination of about 15 miles of where the Darling line might be looked for, in connection with an effort to relocate the corner

the Southern Ute Indian Reservation on that line, without discovering on the ground any evidence of Darling's survey, and the next year, 1900, he made further examination under instructions of the Commissioner of the General Land Office, to attempt to identify and relocate the Darling line, that examination including the line between the 6th and 8th astronomical monuments of the Darling Survey. (Record p. 304) covering 120 miles. Number 6 was found and identified and a number of corners to the west across the Carnero range but none in the valley of the Navajo River with the exception of a stone southwest of Monument No. 7, about 38 chains distant, marked and buried in the ground, not mentioned in Darling's notes, and was at the terminus of the line run by Johnson from Monument No. 6. This stone was pointed out by old residents who thought it was a monument on the Darling survey. Johnson found blazed trees up to the vicinity of where the stone was found, and continued his examination on west from the stone but found no evidence of the line. He made an examination west of monument No. 7, and found Darling's 217th mile corner, between two and three miles from that monument, and the 233 mile corner and no others between 7 and 8, the last being seven six and seven miles west of the 233 mile corner. He says that this examination was sought by the Land Office to develop the true condition of the Darling line, with a view to its possible restoration.

The fact that the Commissioner gave instructions for this examination shows a lack of acquiescence in, or recognition of, the Darling line, "through the department of public lands" and in this connection, attention is called to the letter of the Commissioner at page 803 of the Record; and a similar lack, through the legislative department, is to be found in the fact of the authorization of the resurvey in 32 Stat. at Large, page 754, which was made in pursuance of recommendations and estimates from the Department (Record, pp. 310, 797-80).

It also appears from the record that Congress passed a resolution adopting the Carpenter line, which was properly vetoed by President Roosevelt. (Record, pp. 303-4.)

Attention is also called to the interesting letter of Acting Commissioner Dimple at pages 800 to 803 of the Record, and also to the letter of Commissioner Richards at pages 806 to 809.

Even the State of Colorado did not know "where it was at," as shown by the act of its general assembly, of April 26, 1901. (Record, p. 1068.)

The report of the commissioner appointed under that act appears at pages 670 to 673 of the Record, and is confirmatory of our position as to the defective and inaccurate condition of the Darling line.

THIRD

There has not been continuous recognition of the Darling line by the United States.

The defense is founded upon the alleged acquiescence in, and recognition of, the Darling line by Colorado, New Mexico and the United States for more than 30 years, and the argument in support of that defense must be based on the case of *Missouri vs. Iowa*, 7 Howard, 660, which sets out that a state is in such private grant the United States as to matters antecedent to its admission into the Union, that it is bound by what the United States may have done while the state was a Territory and unable to assert any rights for itself. This must be taken as the established doctrine of the court, but complainant contends that the facts here are so different from those in the Missouri–Iowa case, that that case is not applicable.

It may be well as briefly as possible to state here what that case was, and what the court held.

Missouri filed a bill, alleging that Iowa had obtruded into Missouri for a space of more than ten miles wide and about 200 miles long; Iowa answered, denying the right claimed by Missouri and filed a cross bill charging Missouri with attempting to encroach upon the territorial limits of Iowa, and praying, much like the original bill, that the boundary between the two states be ascertained by a decree of the court, settling the true and rightful

between the two states. It will be seen, according to the opinion of the court, that the pleadings did not claim any particular line. The court says that the controversy originated in 1837 between the United States and the State of Missouri and was carried on for ten years before Iowa came into the Union in 1846, and that she was bound by the acts of her predecessor, the United States. In 1816 John C. Sullivan was sent by the United States to run the Indian lines, north of the Missouri river. The court says there were 15 Indian Treaties referring to the line run by Sullivan in 1816, each of which recognized that boundary as the Missouri State line, and must be taken as admissions on the part of the general government that the Missouri boundary and the old Indian Boundary were identical. From the time Missouri became a state, Sullivan's line had been recognized by the United States as the true northern boundary of Missouri, so that the United States were committed to this line when Iowa came in to the Union, and Iowa must abide by the condition of her predecessor and cannot now be heard to disavow the old Indian line as her true southern boundary. The Court disregarded the claims of both states, and fixed the boundary on the line surveyed by Sullivan in 1816. After discussing the varying claims of the two states, the court says that it is driven to that call in the constitution of Missouri which declares that her western boundary shall correspond with the Indian Boundary line. The decree recites that the Sullivan line is the one to which the descriptive call in the constitution of Missouri refers as the true western and northern boundaries of the state of Missouri; and that the State of Missouri had recognized these lines as her boundary for the first ten years of her existence, if not more. But that in the year 1837, she caused another line to be run as her northern boundary, lying about ten miles north of the Sullivan line, and claims jurisdiction up to that line of 1837, and that she was not justified in causing the line of 1837 to be extended as her northern boundary; and the court further found that Iowa was estopped from setting up claim to a line south of the Sullivan line as by her cross-bill she attempted to do. At page 580 of the report, this court said:

FOURTH

New Mexico could not acquiesce in, or recognize, any boundary [illegible] after January 6, 1912.

FIFTH

The record shows that "the department of public lands" attempted absolutely to repudiate and abandon the Darling line.

(Not the record, which, in effect, required the making of a new and independent survey of the boundary, beginning at its western end and running east instead of retracing the Darling line which ran from east to west; the making of a new set of astronomical observations with no attempt to re-establish those of Darling; a redetermination of coordinates; a new making of the mile corners and the obliteration of all evidences of corners or monuments set by Darling.

These instructions evidence the settled purpose of the Land Office to destroy and obliterate the Darling line as far as possible and not to recognize it as of any value whatever.

In addition to this, special instructions to Mr. A. E. Compton (Record p. 820 — which were approved by the Commissioner of the General Land Office, specially directed him to make a closing of Township 32 North, Range 4 West, on the Carpenter line. That was in 1907. Patents have been issued for land in that township which extend to the Carpenter line. (Record, p. 500.)

In closing this hastily prepared and inadequate brief, — hastily prepared because I did not get the printed record, without which I could not proceed, until November 3, 1924, only a few days before starting from New Mexico to Washington, — I will attempt a summary of the complainant's position.

First, it is clear that the Carpenter survey is as good as can be made.

Second, the Darling survey is inaccurate, defective, and in part work of pure fiction.

Third, the General Land Office must have been thoroughly convinced of the utterly worthless character of the Darling survey, when it directed the making of a new and independent survey of the 37th parallel with an accompanying destruction, as far as possible, of all evidence on the earth's surface of the Darling line.

Fourth, Congress presumably took the same view when it authorized that new survey, and, later, passed a resolution adopting the Carpenter line.

Fifth, the State of New Mexico has not recognized the Darling line as a boundary.

Sixth, The United States while recognizing the Darling line for years, only because nobody questioned it, finally repudiated it and tried to destroy it.

Seventh, even the State of Colorado, through its legislature, in 1901, shows a lack of certainty as to the Darling line which it now claims to have recognized ever since 1868.

It is respectfully submitted that the Carpenter line should be adopted as showing the boundary between the two states.

FRANK W. CLANCY,
Counsel for Complainant.

FILE COPY

IN THE

Supreme Court of the United States

OCTOBER TERM, 1924

No. [illegible], Original

THE STATE OF NEW MEXICO,

vs.

THE STATE OF COLORADO

BRIEF IN BEHALF OF THE STATE OF COLORADO.

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IN THE

Supreme Court of the United States

OCTOBER TERM, 1924

No. 12, Original

THE STATE OF NEW MEXICO,

vs.

THE STATE OF COLORADO

BRIEF IN BEHALF OF THE STATE OF COLORADO.

INTRODUCTION.

This original suit was commenced by New Mexico for the purpose of causing the ancient and accepted boundary between Colorado and New Mexico to be changed to the line of a new *ex parte* survey not acceptable to Colorado. Were the contention of New Mexico to be sustained it would take a considerable strip of territory from Colorado

and place it in New Mexico, without the consent of Colorado; would result in the creation of an entire new boundary between these states; would open for dispute the boundary between Colorado and Oklahoma and would subject to question the boundary between Kansas and Oklahoma, because the Kansas-Oklahoma boundary, the Colorado-Oklahoma boundary and the Colorado-New Mexico boundary all are fixed as the 37th parallel of north latitude.

The suit is not brought for the purpose of restoring and remarking an ancient and accepted boundary between the states. Its purpose is to cause a recent fixation of the 37th parallel of north latitude to be declared the boundary between the litigant states, without regard to the location and monumenting of said parallel by the United States in 1868 and 1874 (when both states were territories) since hitherto recognized and accepted as the true boundary by the United States and the territories and, later, by the states.

Colorado denies that the line of the new survey is the boundary between the states; asserts that the ancient, recognized and accepted line surveyed and monumented in 1857, 1859, 1868 and 1874, is the true boundary and in her cross-bill prays that the same be relocated and remonumented, under the direction of the Court, by reason of the fact that a large number of the monuments originally established along said boundary were mutilated or destroyed by the engineer who surveyed the new line now sought to be imposed upon Colorado.

STATEMENT.

The 37th parallel of north latitude between the 25th and 32nd meridians of longitude west of Washington, as located and monumented in 1857, 1859, 1868 and 1874, constitutes the boundary between Colorado and Oklahoma and between Colorado and New Mexico.

The boundary between the States of Colorado and New Mexico was established by the United States when Colorado and New Mexico were territories, under surveys by Ehud N. Darling in 1868 and John J. Major in 1874. Darling's survey extended from the Macomb monument (hereinafter mentioned) westward to the northwest corner of New Mexico and the Major survey extended from the Macomb monument eastward to the Preston monument, located on the line of the Major survey, the northeast corner of New Mexico.

The initial determination of the location of the 37th parallel of latitude, along the southern boundary of Colorado, was made in 1857, under the direction of Col. Joseph E. Johnston, U. S. Army, who established the same as far west as his determination of the intersection of said parallel with the 103rd meridian west of Greenwich. In 1859 Captain Macomb, U. S. Army, under orders from the War Department, established a new monument at a point 9781.2 feet east of the Johnston monument because of errors made in Col. Johnston's determination. The monument so erected by Captain Macomb was thereafter known as the "Macomb Monument" and was considered the northeast corner of New Mexico until 1881.

May 22, 1868, pursuant to authority of an Act of Congress approved March 2, 1867 (14 Statutes at Large, 476), Ehud N. Darling, U. S. Surveyor and Astronomer,

entered into an agreement with the Commissioner of the General Land Office, acting for and on behalf of the United States, to "well, truly and faithfully establish by astronomical observations the 37th parallel of North Latitude between the 103rd and the 109th degrees of West Longitude from Greenwich, which is a boundary common to New Mexico and Colorado Territories as defined by Acts of Congress approved September 9th, 1850, vide Section 2, Statutes at Large, Vol. 9, page 447, and Feby. 28th, 1861, See Section 1 of 'An Act to Provide Temporary Government for the Territory of Colorado', Statutes at Large, Vol. 12, page 172" (fol. 690). Darling thereafter surveyed and monumented said boundary between the Territories of Colorado and New Mexico in conformity with his contract and the specifications thereto attached, including the erection of eleven astronomical stations (fols. 690-709); and his survey, location and monumenting of that portion of the boundary between said territories was accepted by the United States. His survey commenced at the Macomb monument and extended to the intersection of the 37th parallel of north latitude with the 109th degree of west longitude from Greenwich, the southwest corner of Colorado and the northwest corner of New Mexico.

In 1874 John J. Major, U. S. Astronomer and Surveyor, completed the survey, establishment and monumenting of the true position of the south boundary of the Territory of Colorado between the 25th and 103rd meridians of longitude west of Washington and Greenwich, respectively, in conformity with his contract of June 2, 1873, with the United States, acting by and through the Commissioner of the General Land Office. He commenced at the southwest corner of the State of Kansas and ran westerly, monumenting the line as he proceeded, to the Macomb

monument, which he noted as the point of commencement of the Darling Survey of 1868 (fols. 600, 609, pp. 487, 493). The Major survey was approved by the Commissioner of the General Land Office and his monuments have since hitherto been recognized as the markings of the boundary between the Territory of Colorado and Indian Territory, later the State of Colorado and the State of Oklahoma, and since 1881, as a part of the boundary between the State of Colorado and the Territory of New Mexico, and, later, between the two states.

The State of Colorado was admitted into the Union August 1, 1876, pursuant to Act of Congress, approved March 3, 1875 (18 Statutes at Large, 474). By both said Enabling Act and by the Constitution adopted by the People of Colorado, under which Colorado was admitted into the Union by proclamation of President Grant, the 37th Parallel of North Latitude between the 25th and 32nd Meridians of Longitude west from Washington was fixed as the southern boundary of the state.

The Macomb monument was recognized as the northeast boundary of New Mexico until the year 1881. During that year Chaney & Smith established the "Cimarron Meridian" which intersected the Major line two miles and 40.53 chains east of the Macomb monument. In June, 1900, Levi S. Preston, a U. S. Deputy Surveyor, working under agreement and instructions, dated October 25th, 1899, with the Surveyor General of the United States for New Mexico, which contract and instructions had theretofore been approved by the Commissioner of the General Land Office of the United States, retraced, remarked and reestablished the line theretofore established and monumented by said Major in 1874, from the Macomb monument easterly for a distance of two miles and 40.53 chains to the intersection of the Major line with the Cim-

arron Meridian, at which point and in conformity with his contract and instructions, Preston erected a monument (thereafter known as the "Preston Monument") as and for the northeast corner of the then Territory of New Mexico, and as and for the intersection of the 37th parallel north latitude with the Cimarron Meridian, the boundary between the States of New Mexico and Oklahoma. Preston's field notes and survey for this portion of the boundary between Colorado and New Mexico were accepted and approved by the United States Surveyor General for New Mexico (Vol. 611, p. 494). Since 1874 and since the retracing, remarking and reestablishing of the Major line between the Macomb and Preston Monuments by Preston, said line has been recognized and accepted by the United States, by the Territory of Colorado and the Territory of New Mexico, and, later, by the States of Colorado and New Mexico as a part of the boundary between said territory and state and between said states.

In 1897 some question arose respecting the location of the boundary (Darling line) between astronomical monuments 6 and 8 established by Darling in 1868, in the vicinity of Edith, Colorado, near the point of the intersection of the boundary with the Navajo River and over two hundred miles west from the Macomb Monument. The location of Darling's astronomical station No. 7 and some of the mile posts (which had disappeared) along the boundary between his astronomical stations 6 and 7 became a subject of dispute.

For the purpose of setting at rest any possible doubt respecting the true location of the Darling line in the vicinity above mentioned, in 1901, the General Assembly of the State of Colorado passed an Act (Session Laws, Colo., 1901, p. 78) authorizing the Governor to appoint a Commissioner whose duty it should be to resurvey and reestablish the

line surveyed and established by Darling in 1868, between his astronomical monuments Nos. 6 and 8. This commissioner was authorized to act in conjunction with a commissioner to be appointed by authority of the Territorial Assembly of New Mexico and with any person or commissioner appointed and designated by the Interior Department of the United States, or either thereof. In the event no such commissioners were appointed by the Territory of New Mexico, or by the United States, before July 15, 1901, the commissioner for Colorado was then directed to resurvey, reestablish and remonument the Darling line, in the locality mentioned, without awaiting the appointment of commissioners for New Mexico or the United States (fols. 949-952, pp. 668-670). Charles A. Johnson was appointed commissioner for Colorado. The United States and the Territory of New Mexico failed and neglected to appoint commissioners. Johnson accordingly proceeded to resurvey and reestablish the Darling line between astronomical monuments 6 and 8 and thereafter made report to the Secretary of State, of the State of Colorado (fols. 953-961, pp. 670-673). Nothing came of the Johnson survey other than his investigation and report to the Secretary of State of Colorado, by reason of the failure of New Mexico and the United States to co-operate in the work.

Charles H. Johnson found a "jog" or angle in the Darling line easterly from Astronomical Monument No. 7 (fols. 956-957, pp. 671-672). This "jog" or defect has a marked similarity with the defect in the boundary between Wyoming and Montana and is similar to discrepancies occurring in the boundaries between a number of the states (fols. 615-618, 687, pp. 496-498, 528). As we shall hereafter observe, it was corrected and set at rest by William C. Perkins, U. S. Surveyor, in 1917 (fols. 1052-1118,

733-792, and map following p. 792). Since 1868 the Darling line in the vicinity under consideration has been and still is the recognized and accepted boundary.

Investigations made by the General Land Office in 1899, 1900 and 1901, for the purpose of determining the status of certain conflicts of lands patented to or entered by settlers under the Colorado and New Mexico official plats, disclosed that in addition to the obliteration of monuments, some errors of alignment, measurement and position existed in that portion of the Darling line above mentioned and that these conditions were responsible for overlaps in the Colorado and New Mexico public land surveys which had resulted in conflict of claims on the ground (fols. 890-948, 1121, pp. 631-667, 793).

As a result of the above disclosure of the condition of the Darling line, Congress, by Act of July 1, 1902 (32 Stats., 552, 574) authorized "the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington".

July 7, 1902, Howard B. Carpenter, U. S. Surveyor and Astronomer, entered into a contract with the United States for the resurvey and reestablishment of the thirty-seventh parallel of north latitude between the twenty-fifth and thirty-second degrees of west longitude from Washington. The work was commenced in September, 1902, and completed in October, 1903, and was accepted by the General Land Office. On December 19, 1908, the joint resolution passed by the 60th Congress (S. R. 78) to establish "the boundary line between the States of Colorado

and Oklahoma and the territory of New Mexico", along the line of the Carpenter survey executed under authority of the Act of July 1, 1902, was vetoed by President Roosevelt upon the ground that the Carpenter survey, if adopted as the south boundary of Colorado, would "remove from the jurisdiction of that state and add to the Territory of New Mexico a strip along nearly the whole southern boundary of said state, in which there are located at least five post offices and an appreciable number of inhabitants" and for the reason that "no action has been taken by the Legislature of the State of Colorado consenting to or accepting the location of the boundary as proposed in this resolution" (vols. 1151-1152, pp. 824-825). No further action was taken by Congress and the resolution failed of adoption.

New Mexico claims in this suit that the line surveyed by Howard B. Carpenter under authority of the Act of Congress of July 1, 1902, and disapproved by Congress, is the boundary between Colorado and New Mexico. If the claims of New Mexico are valid it follows that the Carpenter survey also marks the boundary between Colorado and Oklahoma, for the reason that the Carpenter survey extended from the southwest corner of Colorado to the west line of Kansas and, by the terms of the Act, was sought to be made to apply to Colorado and Oklahoma as well as to Colorado and New Mexico.

The line established by John J. Major in 1873-1874 from the southwest corner of Kansas to the Macomb monument, along the line of the initial determination made in 1857 by Col. Joseph E. Johnston, has been and now is the recognized and established boundary between Colorado and Oklahoma (formerly Indian Territory) and between Colorado and New Mexico from the Preston monument to the Macomb monument. The Darling line since 1868

has been and now is (except as disputed by the bringing of this suit) the recognized and accepted boundary between the territories and later between the States of Colorado and New Mexico. It is now sought to substitute the new line run by Carpenter in 1902-1903 for these ancient, recognized and established boundaries. New Mexico contends that the Carpenter line is a more accurate (although not technically exact) fixation of the thirty-seventh parallel of north latitude than is the long recognized boundary, between Colorado and New Mexico, established and monumented by Major and Darling and that, therefore, the Carpenter line is the boundary although said line has never been accepted or recognized by Colorado and failed of approval by Congress.

The Carpenter survey was not an exact fixation of the 37th parallel. Tests made by the official inspector for the General Land Office show that Carpenter's astronomical monument No. 5 is 14 chains too far north (pp. 582-583). This deviation is nearly one-half as great as the jog in the Darling line at Ewell Canyon. If the boundary is to be moved to the Carpenter line from its long accepted location, a subsequent removal will be necessary when a still more accurate survey has been made. As the boundaries between most of the states were originally determined under adverse conditions and before the improvement of instruments, few, if any, of the parallels and meridians are determined with exactitude, and the recognition of the principle contended for by New Mexico would disturb practically all of these long established boundaries (fols. 614-619, pp. 496-498. See, also, pp. 5-28).

The Act of the Colorado Legislature of 1901, above referred to, authorized the Commissioner for Colorado, in conjunction with commissioners for the Territory of New

Mexico and the United States, "to resurvey and reestablish" the boundary between Colorado and the Territory of New Mexico "as heretofore surveyed and established by the said Darling" between his astronomical monuments numbered 6 and 8. Had the United States and the Territory of New Mexico accepted the offer thus made by Colorado and had the commission so composed proceeded to resurvey and reestablish the portion of the Darling line mentioned in the Act of the Colorado Legislature and had the results of their resurvey been accepted by proper legislative and congressional acts, the resurvey and reestablished lines would have been fixed by compact. But the United States and the Territory of New Mexico did not join. They ignored the offer of the Colorado Legislature.

This offer by the Colorado Legislature was not a consent by that state to a complete new fixation of the whole or any part of the southern boundary of the state. It was limited to a resurvey and reestablishment of a small portion of the Darling line and included no other part of the boundary.

The Act of Congress of July 1, 1902, provided for a "resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma" along the entire south boundary of the State of Colorado. It was probably the intent of Congress to resurvey and reestablish the then existing boundaries between Colorado and the Territories of New Mexico and Oklahoma, as originally established by Major and Darling. But in the contract with Howard B. Carpenter, the Commissioner of the General Land Office directed Carpenter to proceed to make a new and independent fixation of the thirty-seventh parallel of north latitude from the southwest corner of Colorado to

the west boundary of Kansas and, by the instructions appended to the contract, directed Carpenter not only to set a complete new line of astronomical monuments and mile posts, but directed him to find and obliterate "all evidences of corners or monuments set by Darling on the south boundary of Colorado" but to "leave standing the monuments now standing on the line between Colorado and Oklahoma, except those set by Darling" (fol. 14, p. 7). In executing his contract, Carpenter sought out and defaced, obliterated or destroyed a large number of the Darling monuments but, fortunately did not destroy all of them or completely erase the evidences of those he did seek to destroy, and in all cases where he records the defacement or destruction he gives the location of such monuments by bearing references to mile posts or monuments established by Carpenter in his survey. As a result, the General Land Office has been enabled to restore a considerable number of the monuments obliterated or defaced by Carpenter and the location of the remainder is capable of ascertainment by reference to the monuments and mile posts along the Carpenter line. The Carpenter line commenced at the southwest corner of Colorado, which point is coincident with the terminus of the Darling survey in 1868, and ran thence easterly across the south portion of Colorado upon a line ascertained from astronomical observations by Carpenter, independent of the observations and monuments established by Darling and Major. The line so run by Carpenter lies for the most part northerly from the Darling and Major lines and intersected the west boundary of Kansas 40.34 chains north of the long established southwest corner of Kansas. If adopted the effect would be to remove a strip of territory from along the south border of Colorado and to place it in the states of New Mexico and Oklahoma, leaving a discrepancy of 40.34 chains at the

southwest corner of Kansas between the location of the 37th parallel as it now constitutes the boundary between Kansas and Oklahoma and the location of the thirty-seventh parallel between Oklahoma and Colorado along the line established by Carpenter. (See fol. 15, p. 8, and Colorado Exhibits 6 to 16, incl., side fols. 719-729.)

Colorado never consented to the independent survey made by Carpenter and never accepted and has always ignored the boundaries and monuments set by him. It has continued in its exercise of sovereignty down to the long established boundary marked and monumented by Major and Darling, without regard to the Carpenter Survey. New Mexico, other than for the bringing of this suit, has never sought to exercise her sovereignty north of the Major and Darling line.

The monuments and mile posts established by Carpenter during his survey are still in existence and although not recognized by either of the states or by the United States, are the subject of some confusion, but should not be destroyed until restoration has been made of all the Darling monuments and mile posts destroyed or defaced by Carpenter.

In 1917, William C. Perkins, U. S. Surveyor, under authority and direction of the Commissioner of the General Land Office, made a resurvey and restoration of that part of the boundary line between Colorado and New Mexico, embraced between Darling's 203rd mile corner and his 8th Astronomical Monument (241st mile corner), as surveyed by Darling in 1868. This restoration covered that portion of the line which includes the "jog" or angle above referred to and which was the subject of dispute as a result of the inability of the people in both states to ascertain the exact location of the Darling line.

Perkins completely restored the Darling line, according to the official records of the Darling survey, and prepared a plat showing such restoration and resurvey. He established each mile post by setting an iron post three feet long and properly marked and reestablished the 7th astronomical monument, making complete field notes which are embodied as a part of the records in this case (fols. 1033-1117, pp. 714-792, and map, fol. 1119). Since such reestablishment of the disputed portion of the Darling line by Perkins all ambiguities have been removed and the location of the boundary between the states definitely marked on the face of the earth.

All public land surveys by the United States have closed on the Darling and Major lines since 1868 and 1874, with the exception of one or two township surveys made subsequent to 1902 and prior to 1908 in the vicinity of the "jog" near Darling's 7th astronomical station and which surveys have since been corrected to close on the Darling line. The United States has considered the Darling-Major line to be the true boundary between the Territories of Colorado and New Mexico and later between the States, for all executive and administrative purposes since 1868 and 1874. All territory north of that line has been considered to be in Colorado and all territory south in New Mexico. The same rule obtains with respect to Government post offices and all other Government activities.

For more than 30 years subsequent to 1868 the position of the Darling line, from the Macomb monument to the intersection of the 37th parallel of north latitude with the 109th meridian of longitude west from Greenwich, remained undisputed and the correctness of its technical execution unquestioned, and, as so established and monumented, with the exception of the filing of this suit, the

said Darling line hitherto has been recognized and accepted by the United States, by the Territory and State of Colorado and by the Territory and State of New Mexico, and has been and is now recognized and accepted by the Land Department of the United States, in its surveys of the public domain, as the boundary line between Colorado and New Mexico from the Macomb monument westward. From 1868 to the present time the Territory and later the State of Colorado has claimed and exercised dominion and sovereignty and now claims the same, over the territory down to the boundary line so established by Darling and no further. County lines have been formed, towns and settlements have been established, school districts, election districts, voting precincts, land districts and water districts have been created with reference to said line. Public officials have been elected, property has been assessed and taxes levied and collected under the authority of the State of Colorado, and its courts, both civil and criminal, have exercised jurisdiction in all places north of said Darling line. The Territory and State of New Mexico has exercised like jurisdiction in all places south of said line (fols. 611-612, pp. 494-495).

Since 1874, the Major survey and marking of 37th parallel of north latitude from the southwest corner of Kansas westward to the Macomb monument has been the recognized and accepted south boundary of Colorado between said points and, since the acceptance of the Preston survey, retracement and remarking of said line, in the year 1901, the Major line as remarked and retraced by Preston between said Macomb monument and the Preston monument, at the intersection of said parallel with the Cimarron Meridian, has been and now is the recognized and accepted boundary between Colorado and New Mexico at all points between said monuments and

Colorado has exercised dominion and sovereignty north of said line and New Mexico south from said line (fol. 612, p. 495).

The Carpenter line lies to the north of the Darling line, with the exception of a few miles near the Macomb and Preston monuments where, in running from the west, Carpenter crossed the Darling line, passed a very short distance to the south of the Macomb and Preston monuments and, easterly from the Preston monument, recrossed the boundary between Colorado and Oklahoma (the Major line) and remained considerably north of the Major line across the remainder of Colorado, intersecting the east line of Kansas about one-half mile north of the long established and recognized southwest corner of that state. If the ~~Darling~~ line should be declared to be the boundary between Colorado and New Mexico, the Preston monument, now recognized as the northeast corner of New Mexico, will lie too far to the north and a new monument will have to be established at the northeast corner of New Mexico. This monument would also become the northwest corner of Oklahoma. The southeast corner of Colorado would be one-half mile northwest of the corner of Kansas, notwithstanding the fact that said corners are both presumed to be on the 37th parallel. A considerable strip of territory, including several towns and villages and a number of inhabitants, valuable properties, etc, would be taken away from Colorado and added to New Mexico. It would logically follow that upon complaint of Oklahoma, a similar strip of territory should be taken from Colorado and added to Oklahoma. If the Carpenter survey is to be adopted as the boundary between Colorado, New Mexico and Oklahoma, upon the theory that it is a more accurate fixation of the position of the 37th parallel, it would follow that the 37th parallel of north latitude between Kansas and Oklahoma is not correctly

located and should be resurveyed thereby taking a strip of territory from Kansas and adding the same to Oklahoma. To what extent this displacement of existing boundaries between other states located along the 37th parallel of north latitude would be affected the record does not show but it may well be presumed that irregularities would be found easterly and westerly across the United States.

New Mexico urges that the Court decree that the line surveyed and monumented by Carpenter is the boundary between Colorado and New Mexico.

Colorado maintains that the boundary between the two states is that established and monumented by Johnson, Macomb, Darling and Major in 1857, 1859, 1868 and 1873, respectively, and, by cross-bill, prays that the Court cause the Major-Darling line to be restored and remonumented while the traces of the said line are still capable of location, and in order that all future controversy may be at an end.

THE PLEADINGS.

October 29, 1919, New Mexico filed her bill of complaint alleging that on July 7, 1902, Howard B. Carpenter, a U. S. Surveyor, entered into a contract with the United States, to well, truly and faithfully resurvey, reestablish and remark the boundary between Colorado and the then Territories of New Mexico and Oklahoma, along the 37th parallel of north latitude lying between the 25th and 32nd degrees of longitude west from Washington and that in pursuance of said contract such resurvey, reestablishment and remarking was made by Carpenter in accordance with his field notes, a copy of which, with his instructions, is attached to the bill of complaint. New Mexico then claims that the Carpenter line is the boundary between

Colorado and New Mexico; that Colorado disregards said boundary and has usurped jurisdiction of a considerable amount of the territory south of the line, including the levy and collection of taxes, the exercise of civil and criminal jurisdiction by her courts, etc., and prays that the line surveyed, established and marked by Carpenter, as set forth in the field notes of his survey, be decreed to be the true boundary between the States of Colorado and New Mexico.

March 1, 1920, Colorado filed her answer and cross-bill and March 18, 1924, filed her amended answer and amended cross-bill.

In the original answer and cross-bill Colorado pleaded that the Darling line is and always has been the boundary between the Territories and later the States of Colorado and New Mexico. Before the conclusion of the taking of testimony it was discovered that the long established and accepted boundary between the two states also includes the two miles and 40.53 chains of the Major line lying between the Macomb monument and the Preston monument (at the intersection of the 37th parallel with the Cimarron Meridian). Colorado amended her answer and cross-bill to conform.

The Amended Answer by Colorado admits the Carpenter survey, but avers that his survey and field notes were never confirmed by Congress or by either Colorado or New Mexico, and that, on the contrary, the effort made to confirm said survey by Congress was vetoed by President Roosevelt and failed to become effective and the Carpenter line never has been recognized as the boundary. A copy of the veto message is attached to the original answer by Colorado and made a part thereof. Colorado denies that the Carpenter line is the boundary between

the states and admits that Colorado has disregarded the Carpenter line and has exercised and does exercise dominion over a considerable strip of territory south of the Carpenter line, has levied and collected taxes on properties and, through its courts, has exercised both civil and criminal jurisdiction over persons and property south of the Carpenter line. Colorado then pleads the admission of the State to the Union on August 1, 1876; the establishment of the Macomb monument in 1859 at the intersection of the 37th parallel with the 103rd Meridian of longitude west from Greenwich; the survey of the 37th parallel from the Macomb monument to the southwest corner of Colorado by Darling in 1868; the survey by Major, in 1874, of the south boundary of the Territory of Colorado between the 25th and 103rd Meridians of longitude west of Washington and Greenwich respectively, and the monumenting of said line from the southwest corner of Kansas to and beyond the Macomb monument; attaches to the original answer and the amended answer and cross-bill the field notes and contracts of both Darling and Major; alleges the retracing, remarking and reestablishing by Preston, in 1900, of the Major line from the Macomb monument easterly for a distance of two miles and 40.53 chains to its intersection with the Cimarron Meridian, where Preston erected his monument as and for the northeast corner of the then Territory of New Mexico; attaches a copy of Preston's record and field notes to the amended answer; avers that for more than 30 years the position of the Darling line remained undisputed and the correctness of its technical execution unquestioned and that the said line has been generally recognized and acquiesced in by both the states and accepted by the Federal Government and is now recognized and accepted by the Federal Government as the true and subsisting boundary line between Colorado

and New Mexico from the Macomb monument westward. Colorado then justifies her exercise of dominion and sovereignty north of the Darling line since 1868 and alleges those activities upon her part indicative of the exercise of sovereignty; avers that Government postoffices are established in Colorado and New Mexico with reference to said Darling line and that public land surveys in both states are closed thereon; pleads the Major survey in 1874, from the southwest corner of Kansas to the Macomb monument and avers that the Major line, together with the retracement and remarking thereof by Preston between the Macomb monument and the Cimarron Meridian has been and now is a part of the boundary between Colorado and New Mexico; avers that the Carpenter line passes through several towns in Colorado and that along the entire line there are material and excessive variances between the Carpenter line and the true boundary between the states (the Darling-Major surveys); that the Carpenter line passes 93 links south of the Macomb monument and 110 links south of the Preston monument and that the establishment of the line as the boundary would remove a considerable strip of territory from Colorado and place the same in New Mexico to a point some distance westerly from the Macomb monument (where the Carpenter and Darling lines cross) and that from this point easterly it would remove a narrow strip of territory from New Mexico and add the same to Colorado. Avers that the Carpenter survey consisted of a new fixation of the 37th parallel of latitude independent of the Darling-Major line and that the Carpenter line not only failed of confirmation by Congress but has been ignored by the Federal Government, which has accepted and still accepts the Darling-and Major surveys as the true and correct boundary between the States. Colorado then prays that complainant's prayer be denied and that the Darling-

Major line be declared to be the true boundary between the States.

By amended cross-bill Colorado alleges that the true boundary line between the litigant States is the line surveyed and monumented by Darling in 1868, field notes of which are attached to the original answer, from the Macomb monument to the southwest corner of Colorado and the line surveyed and monumented by Major in 1874 and retraced and reestablished by Preston in 1900 from the Macomb monument easterly to the Preston monument (the northeast corner of New Mexico); adopts by reference the allegations of fact contained in the Amended Answer and avers that Carpenter in making his survey destroyed and obliterated many of the monuments and corners established by Darling. Colorado prays that, for the purpose of avoiding future controversy, the Court declare and decree the Darling and Major line to be the boundary between the States and prays such relief as may be necessary in order to restore, reestablish and remark said boundary.

THE EVIDENCE.

THE EVIDENCE SHOWS THAT FROM THE MAKING OF THE DARLING SURVEY IN 1868 THAT SURVEY WAS ACCEPTED AND RECOGNIZED AS THE BOUNDARY BETWEEN COLORADO AND NEW MEXICO, AND HAD FOR MORE THAN FIFTY YEARS MET WITH GENERAL ACQUIESCENCE AS SUCH BOUNDARY LINE.

WALTER T. PAYNE, a witness for Colorado, testified:

That he had been Assistant Chief of Surveying Division of the General Land Office for 25 years, and had been employed in the General Land Office for 31 years.

That to the best of his knowledge and belief all public surveys in Colorado and New Mexico have been closed on the Darling line (Record, p. 509).

That the Darling line was recognized by the General Land Office as the southern boundary of Colorado in 1876, when Colorado was admitted to the Union, and as the northern boundary of New Mexico January 6, 1912, when New Mexico was admitted; that it is so recognized today.

It is his impression and belief that all lands surveyed and patented along the 37th parallel north latitude between the 103rd and 109th meridians have been closed along the Darling line (p. 509).

That the Darling line was recognized as the boundary before either Colorado or New Mexico became a State.

That there was a time when the Land Office recognized the Carpenter survey as the true north boundary of T. 32 N., R. 4 W., N. M. P. M., but that in the survey of all other townships on or near the boundary, the Darling line has been recognized as the true boundary since 1869 (pp. 515-516).

(NOTE: This exception refers to a survey of said township 32 made by Alonzo E. Compton in 1907. See plaintiff's Exhibit 19, opposite p. 826; also Compton's testimony, pp. 618, 619.)

SIMON E. SULLIVAN, a witness for Colorado, testified:

Has been in the Post Office Department, in various positions, since 1893 and is now Assistant Superintendent, Division of Postmasters' Appointments (p. 517).

That the Post Office records show that the post office of Edith, established in 1895, is in Colorado; that from

1891 to 1901 the post office of Arboles was in Colorado and from 1900 to 1908 the post office of Osier was in Colorado; that in 1908 a post office was established at Wooton in Colorado, and that the post office of La Boca is in Colorado (pp. 517-520).

This testimony is borne out by Colorado's Exhibit No. 19, "Post Route Map of the State of Colorado, showing post offices with the intermediate distances on mail routes in operation on the first of January, 1922, published by order of Postmaster General Will H. Hayes", found immediately preceding record, p. 537.

ARTHUR KIDDER, a witness for New Mexico, testified:

Assisted in locating the eight astronomical monuments of the Carpenter survey. Organized a surveying party to retrace Carpenter's line from ast. mon. No. 5 to ast. mon. No. 6, in 1903 (p. 542). He does not regard the Carpenter line as the precise parallel (p. 543).

Believes the Darling line the only one now recognized by the United States General Land Office as the boundary (p. 547).

He thinks the maximum adjustment at any point in the Carpenter line would not exceed six chains, or about 400 feet (pp. 548-549).

That between the 103rd and 109th meridians the elevation varies from 4000′ to 12000′ (p. 560).

FRANK M. JOHNSON, a witness for New Mexico, testified:

He has been U. S. Supervisor of Surveys since 1910 (p. 561).

In 1899 he examined the east boundary of the southern Ute Indian Reservation. Could not locate the Darling

line between the Navajo River and a point east of Edith (about 15 miles), but he was able to determine the general position of the Darling line from the original field notes.

In 1900, under instructions of the Commissioner of the General Land Office, he made a further examination of the southern boundary of Colorado for the purpose of finding and identifying the Darling line between Darling's 6th and 8th ast. mons.; in other words, between Darling's 182nd and 241st mile corners—a distance of 60 miles (pp. 563, 564).

(NOTE: Johnson's recommendation attached to his field notes of his survey of the Darling line between ast. mons. 6 and 8, is that ast. mon. No. 7 be restored to its original position at Edith, and monuments set by proportionate measurement on a line joining this monument and the 206th mile corner (p. 667.)

In 1917, a question arose as to which line public land surveys should close upon, and Johnson took up the matter with the Commissioner of the General Land Office and was instructed to reestablish the Darling line in the vicinity of Edith (Darling's 7th ast. mon.). Johnson then instructed William C. Perkins, U. S. Surveyor, to reestablish the Darling line from Ranges 1 to 4 West, N. M. P. M., and East from Range 1 to Ewell Canyon; also from the Darling 206th mile corner West to Ewell Canyon, and to connect the ends of these two lines by an oblique line, the two lines having a difference in altitude of about 30 chains.

All public surveys on the 37th parallel between the 103rd and 109th meridians are now closed on the Darling line. In R. 4 W., N. M. P. M., they at one time closed on the Carpenter line, but it is Johnson's recollection that these were later changed to close on the Darling line.

The General Land Office, for administrative purposes, recognizes only the Darling line and has done so at all times since 1868, except as to R. 4 W., just mentioned (pp. 571-572).

Johnson thinks that it is true that political subdivisions such as counties, school districts, etc., in New Mexico, and Colorado, for 53 years have closed on the Darling line. Changing from the Darling to the Carpenter line would to some extent require changes of all public surveys in the United States Land Office along the boundary (p. 574).

From the Navajo River west the difference between the Darling and the Carpenter lines is not greater than 10 chains (p. 575).

Johnson is of the opinion that portions of the Darling line not already restored can be restored (p. 575).

As a result of his investigations, in 1899, 1900, and 1901, Johnson "suggested * * * the feasibility and desirability of restoring the Darling line between astronomical stations 6 and 8—the only part of the line at that time in question" (p. 579). This has since been done for over 30 miles in the vicinity of Edith (p. 579).

The Darling line was accepted by the Commissioner of the General Land Office as the northern boundary of New Mexico (p. 580).

In the survey of boundaries by the United States between territories of the United States, the Commissioner of the General Land Office is the usual and customary authority for accepting the surveys (p. 581).

Johnson in his work has found state boundary lines defective. Modern methods of determining azimuth and measurements are far more accurate than those of an early day (p. 585).

GUY P. HARRINGTON, a witness for New Mexico, testified:

Is Assistant Supervisor of Surveys, General Land Office.

That some surveys in this vicinity do not close on any line; that Colorado patents have issued for lands that have extended below the Darling line.

In T. 32 N., R. 4 W., are four patents which extend to the Carpenter line.

Instructions from U. S. Land Office have always been to close on the Darling line, except in two townships, so far as he knows (p. 601).

It is no doubt the intent of the Commissioner that all surveys be closed on the Darling line. All of us understand that the Darling line is recognized by the Land Office; that is the line "we" recognize in our work as the state line (p. 603).

The instructions from the General Land Office, dated July 2, 1918, to Group 79, which included T. 32 N., R. 1 and 4 W., and 1 E. in New Mexico, called for closing upon the reestablished Darling line (p. 606).

The Darling line was recognized by the Land Office in 1902 as it is now, and was so shown on government records as the only boundary line between Colorado and New Mexico. The Land Office has, since 1869, recognized the Darling line, except for a brief time when two townships were ordered to be closed against the Carpenter line (p. 607).

ALONZO E. COMPTON, a witness for New Mexico, testified:

Was formerly Assistant Supervisor of Surveys and held that office a little over 9 years. Prior to becoming

Assistant Supervisor of Surveys, had been connected with the Land Department of the Government for six or seven years; is a graduate Civil Engineer (pp. 617, 618).

Under contract 408, dated June 20, 1907, he surveyed T. 32 N., R. 7 E., and 4 W.; closed on Carpenter line "by direction of the authorities" (p. 618).

He believes T. 32 N., R. 4 W., was re-surveyed "either to make new closings or to determine the status of certain homesteads"; that he "knows of no change in R. 7 E.; knows of no other townships closing on the Carpenter line" (p. 619).

(NOTE: Witness Compton says that the New Mexico principal meridian jogs one mile west from Ewell Canyon.)

Scores, and perhaps hundreds, of patents to lands along the boundary have issued and all close on the Darling line with perhaps two or three exceptions (p. 627).

The General Land Office recognizes only the Darling line (p. 630).

The stipulation between the parties (pp. 493-496) leaves no doubt that the Darling line from the Macomb Monument westward to the southwest corner of Colorado, has, since 1869, been recognized as the boundary by the Land Department of the United States, by Colorado and by New Mexico until the bringing of this suit in October, 1919.

It is to be noted that New Mexico pleaded the Carpenter line from the northwest corner of New Mexico eastward to the Preston Monument on the Cimarron Meridian, which is two miles and 40.53 chains east of the Macomb Monument, which latter marks the eastern end of the Darling survey. The boundary as claimed by Colo-

rado between the Macomb Monument and the Preston Monument, is a part of the Major survey of 1874 as resurveyed by Preston in 1900. (Paragraph (b), p. 494; Major and Preston field notes, pp. 487-492.)

This small piece of the boundary between the two States, has been accepted and recognized to the same extent as has been the Darling line (Stipulation, pp. 493-496).

The evidence in the case is directed mainly to the fact of the making of the respective surveys involved, the official character thereof and to the extent of their recognition by the United States and the States concerned. The fact that Colorado at all times exercised dominion and sovereignty in all places north of the Darling-Major line is fully conceded by New Mexico in the stipulation above referred to.

We quote the language of that stipulation at page 495 of the record:

> "That from 1868 to the present time the Territory and later the State of Colorado, defendant herein, has claimed and exercised dominion and sovereignty, and now claims the same, over the territory down to the boundary as established by said Darling and no farther; that county lines have been formed, towns and settlements have grown up, school districts, election districts, voting precincts, and land districts and water districts have been created with reference to said line; public officers have been elected, property has been assessed and taxes levied and collected under the authority of the Territory and State of Colorado, and its courts of both civil and criminal jurisdiction have exercised jurisdiction in all places north of said Darling

line and the Territory and State of New Mexico has exercised like jurisdiction in all places south of said line; that government post offices have been established as being in Colorado when north of said line and as in New Mexico when south of said line, and that public land surveys on both sides of said line have been closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico have been fixed by reference to said line."

ACCURACY OF THE TWO SURVEYS.

Counsel for complainant lays great stress upon what he terms the accuracy of the Carpenter line and the inaccuracy of the Darling line.

Complainant's attack upon the Darling survey is confined to a small part thereof lying between Darling's 6th and 7th Astronomical Monuments. In fact, the only inaccuracy of any consequence which has been shown to exist in the Darling survey, is between the 196 mile corner and Ewell Canyon, a distance of about 16 miles.

Colorado contends that this is not a matter for consideration at this late date, but it may be well to point out that it has been fully established that the Carpenter line is far from perfect as a location of the 37th Parallel North Latitude. Complainant's witness Johnson testified that he made tests between Carpenter's astronomical monuments 4 and 6 and found that Carpenter's astronomical monument No. 5 is 14 chains too far North (pp. 582-583). This deviation is nearly one-half as great as the jog in the Darling line at Ewell Canyon. And complainant's witness Compton testified "the alignment of the Darling survey so far as I have observed it, except the jog at Ewell Canyon, is good and that of the Carpenter survey

is perhaps excellent" (p. 625). And Compton further stated that measurements of the Carpenter survey are not as good as should have been accepted (p. 625).

Complainant's counsel, near the end of page 2 of his brief, calls attention to the fact that the Carpenter line is 3 miles and 11 chains longer than the Darling line, as evidence of the inaccuracy of the Darling line. Counsel has evidently forgotten that Carpenter, running his line from west to east, passed the Macomb Monument, which was the initial point of the Darling survey, and stopped at the Cimarron Meredian near the Preston Monument, which is two miles and 40.53 chains east of the Macomb Monument (see Carpenter field notes, following his 333rd and 335th miles, pp. 292 and 294). This accounts for all of the discrepancy in the length of the two lines except 50.47 chains, or about five-eigths of a mile. Considering that these lines were run over a country mostly mountainous, this difference in length is not remarkable.

Counsel for complainant seems to think that because of the break in the Darling line at Ewell Canyon, that line despite its long recognition must give way to the Carpenter line. But counsel is in error. A break or jog in a boundary line which has been established and accepted is not ground for discarding it. In Colorado's Exhibit No. 18, a letter from the Commissioner of July 6, 1918, to the United States Surveyor General of New Mexico, giving a history of the Darling and Carpenter lines and accepting the Perkins' resurvey, the Commissioner says (pp. 525 on 528):

> "Defects in the original survey discovered after a long term of years, do not affect the validity of the establishment. It may be cited that the boundary between South Dakota and Montana is fourteen chains west of the boundary between South Dakota and Wyoming, although both are declared

to be the same meridian of longitude, namely, twenty-seven degrees west of Washington. As (fol. 687) another instance of defective original establishment of a State boundary may be mentioned the boundary between Wyoming and Montana in the vicinity of T. 58 N., R. 101 W., 6th P. M., Wyoming. This boundary although declared to be on the 45th parallel of latitude contains a break in the line at mile post No. 97. The line between mile posts 97 and 98 according to the records of this office was found to be S. 66 degrees E., 87.37 chains, which corresponds to a difference of about 35 chains in the latitudinal position. The marked similarity between this case and the one in hand will be noted. There is of course no intention of making any change in these boundaries. When it is understood that an error of one second of arc of latitude is equivalent to an error of about 100 feet measured upon the earth's surface, no two independent establishments of a parallel of latitude can be in exact agreement. The well established principle of law that monuments control over courses and distances is quite applicable to this case."

The Darling line was thoroughly marked at the time of his survey, is still in existence and can be retraced and remarked wherever necessary without great difficulty.

Complainant's witness Johnson stated that from Darling's astronomical monument No. 6 West to his 196 mile corner (about 14 miles) he found the line by Darling's notes and the signs then in existence (p. 585); and that he identified Darling's 201, 202, 203 and 206 mile corners (p. 586). Complainant's witness Compton says that temporary corners were set by Darling from his 191 mile corner to his astronomical monument No. 7, which is

near his 214 mile corner and west of Ewell Canyon and "that he perhaps monumented his line all the way through as he went on his temporary line * * *." (P. 623.) Compton further says: "No doubt those points he marked temporary points from the 191 mile up to Ewell Canyon were actually monumented by him and were never changed" (p. 624). Compton also testified that at the time he made his examination in 1907, it was possible to reestablish and relocate the Darling line except one little gap near Ewell Canyon and that Carpenter did not destroy all Darling's corners, notwithstanding his official field notes (pp. 629, 630). And in his report to Frank M. Johnson of November 20, 1916, on his survey of T. 32 N., Compton says that the instructions for this survey contemplated restoring locally the Darling line (p. 707) and that "it is quite certain that the Darling line can be relocated on the ground very closely * * * there is 6 to 8 astronomical monuments" (p. 709).

That part of the Darling line between his astronomical monuments 6 and 8, concerning the location of which some doubt at one time existed, was completely restored and remonumented by William C. Perkins, U. S. Surveyor in 1917, and the monuments established by him should be considered by Commissioners to be appointed by this Court to restore and remonument the boundary between the States.

STATEMENT OF THE ARGUMENT.

I.

The Darling-Major line was established by the United States when both Colorado and New Mexico were territories and both states are bound by that boundary line.

II.

The surveys of the Darling-Major line made in 1868 and 1874 are the senior surveys of the boundary line and must prevail over the junior survey made by Carpenter in 1902.

III.

The Darling-Major line is the boundary between these states by reason of the recognition and acceptance thereof by the territories and later by the States of Colorado and New Mexico and by the United States from the time of the survey thereof until the time this suit was filed.

IV.

The Carpenter survey has no legal status as a boundary line because it was made without the consent of the State of Colorado, never received the approval of the state, was rejected by Congress and has always been disregarded by every department of the government of the United States.

V.

The Darling-Major line is the legal boundary between the two states and the Court should appoint commissioners to restore the Darling monuments unlawfully destroyed by Carpenter and to reestablish and remonument the boundary.

ARGUMENT.

I.

The Darling-Major line was established by the United States when both Colorado and New Mexico were territories and both states are bound by that boundary line.

The Darling-Major line was the boundary at the time Colorado was admitted into the Union as a State in 1876. No other line was claimed by any of the interested parties. The Carpenter survey was not made until twenty-six years afterwards (1902).

New Mexico was admitted into the Union as a State January 5, 1912, and at that time its northern boundary was the Darling-Major line, so when both states were admitted into the Union the Darling-Major line, constituted the boundary between them. Colorado is now and has been for many years prior to the commencement of this suit in the actual and exclusive possession of, and exercising dominion and sovereignty over the territory involved herein, to the Darling-Major line.

At the time Colorado was admitted into the Union as a State, and also at the time of the admission of New Mexico as a State, the United States were committed to the Darling-Major line as the boundary between said states, and the State of New Mexico is bound by such recognition and adoption, and it must abide by the condition of its predecessor, and is estopped, and cannot now be heard to disavow the Darling-Major line as its true northern boundary.

The well-settled rule is that the boundaries of a state must be determined by what they were at the time of its admission into the Union. A newly formed state is bound by the acts of its predecessor, the Government of the

United States, in regard to matters of boundary, which had plenary jurisdiction over the subject as long as the state remained a territory.

Missouri v. Iowa, 7 How. 660.
Missouri v. Kentucky, 11 Wall. 395.
Indiana v. Kentucky, 136 U. S. 479.

In Missouri v. Iowa, 7 How. 660, 668, this Court said:

"The new state of Iowa came into the Union December 27, 1847, and up to this date she was bound by the acts of her predecessor, the United States, forasmuch as the latter might have directly conceded to Missouri a new boundary on the north, as was done on the west; and so likewise, Iowa is bound by the acts and admissions of the United States, tending indirectly to confirm and establish a particular line as the northern boundary of Missouri. * * *

"The country north of the State of Missouri was for a time attached to the Territory of Michigan, and then to the Territory of Wisconsin. By the act of June 12, 1838 (Ch. 96), it was formed into a separate territorial government by the name of Iowa. And by another act of the same date (Ch. 100), the territory was formed into two land districts, the southern one embracing the country in dispute.

"And on the Iowa side, the public surveys were executed, and lands were sold up to Sullivan's northern line. Nor had the Surveyor General of Illinois and Missouri any jurisdiction to go beyond it north; nor the surveyor's department of Iowa, to cross it by surveys to the south. From the time that Missouri became a state to this day, Sullivan's line has

been recognized by the United States as the true northern boundary of Missouri, so far as it could be done through the department of public lands.

"And thirdly, Congress, as early as 1834, organized a territorial government bounded by said line; laid off counties bounded by it on the south, as early as 1836; and governed the territory for ten years up to that time—all the time recognizing it as the proper northern boundary of Missouri.

"From these facts it is too manifest for argument to make it more so, that the United States were committed to this line when Iowa came into the Union. And, as already stated, Iowa must abide by the condition of her predecessor, and cannot now be heard to disavow the old Indian Line as her true southern boundary. * * *

"We are, therefore, of opinion that the northern boundary of Missouri is the Osage Line, as run by Sullivan in 1816 from the northwest corner, made by him, to the Des Moines River; and that a line extended due west from said northwest corner to the Missouri River, is the proper northern boundary on that end of the line. And this is the unanimous opinion of all the judges."

And the following language is quoted from the decree:

"And the Court further finds, that the State of Iowa is estopped from setting up claim to a line south of the old Indian boundary, known as Sullivan's line, as said State, by her cross-bill, assumed to do; because her predecessor, the United States, by many acts, and by uniform assumptions, up to the time when Iowa was created, in December, 1846, recognized and adopted Sullivan's line as the proper

> northern boundary of the State of Missouri; and that the State of Iowa is bound by such recognition and adoption."

The Darling-Major line was surveyed when the United States was the owner of the public domain which then comprised both the territory of Colorado and the territory of New Mexico. At that time the United States was vested with full and complete power to establish the boundary line between Colorado territory and New Mexico territory where and as it pleased. The location of that line was an establishment of the boundary by the United States as the common owner of both territories. The surveys were, in legal effect, a practical location of the boundary line made by the owner of the territory on each side thereof, which said owner thereafter became the common grantor of Colorado and New Mexico. This boundary line was not only established by the survey, but it was actually marked upon the ground by proper monuments. The rule of law applicable in such case is concisely stated by a text writer in 9 Corpus Juris, p. 244, as follows:

> "A practical location made by the common grantor of the division line between the tracts granted is binding on the grantees. The line established in that manner is presumably the line mentioned in the deed, and no lapse of time is necessary to establish such location, which does not rest on acquiescence in an erroneous boundary, but on the fact that the true location was made, and the conveyance in reference to it."

The legal theory of the doctrine known in law as a practical location of a boundary line is stated in *Alt v. Batz*, 81 N. J. L. 156, 158, as follows:

"In legal theory the doctrine of a practical location is equitable in its nature, arising from the principle of estoppel *in pais*, the fundamental conception of which is the doing of an act by a party in interest, or his acquiescence in the doing of an act by another which would naturally lead to the inference of the existence of a *status* or the establishment of a condition upon which either party in interest may act to his prejudice if the act be disavowed. It is used to preclude a party from maintaining by evidence that which he had before expressly or tacitly denied; or disproving that which he had before expressly or tacitly admitted, when the other party has acted upon the faith of the admission or denial in such a manner that he will be injured unless the same is held conclusive. *Shapley v. Abbott*, 42 N. Y. 443."

Therefore, since the Darling and Major surveys had established the southern boundary of Colorado by marking the same with proper monuments upon the ground, the call for the 37th parallel subsequently made in the Enabling Act, under which Colorado was admitted as a state is controlled by said monuments, regardless of whether said monuments are actually located on said 37th parallel or not. In other words, since the United States established the southern boundary of Colorado by said surveys and actually marked this boundary upon the ground by proper monuments, the correctness of the survey may not thereafter be questioned by any party holding under the United States as grantor. The fact that it may have been the intention to have these surveys follow with perfect exactness the imaginary astronomical line known as the 37th parallel is in no sense controlling after the same were completed and approved. When public land has been

surveyed by authority of the United States, and property rights have been acquired with reference to such survey, the corners and lines so established, whether correct or not, are conclusive and cannot be altered or controlled by other surveys.

Billingsley v. Bates, 30 Ala. 376.
Climer v. Wallace, 28 Mo. 556.
Mayor etc. of Liberty v. Burns, 114 Mo. 426.
Granby Min. etc. Co. v. Davis, 156 Mo. 422.
Arneson v. Spawn, 2 S. Dak. 269.
Goodman v. Myrick, 5 Or. 65.
Jones v. Kimble, 19 Wis. 429.

The question at issue in the instant case is governed by the same legal principles and rules of law that would control if the parties litigant were private parties contending over a boundary line dividing their private estates. But as to private parties, the Darling Major survey would be absolutely conclusive. A few of the many authorities uniformly so holding are referred to in the following note to the case of *Washington Real Co. v. Young*, 110 A. S. R. 678:

> "On the sale of land in sections or subdivisions thereof, according to the government survey, the survey as actually made and run on the ground governs, if the monuments, corners, or lines actually established can be located or proved. (Citing cases.) The true corner of a governmental subdivision of land is where the United States surveys in fact establish it, whether such location is right or wrong, as may be shown by a subsequent survey. (Citing cases.) The question is not where the government corner should have been located, but where in fact it was located. And when it is once found, or the place of its location identified, it must control. * * *

"'The boundaries, as established by the government surveyors and returned to and accepted by the government, are unchangeable, and control the description of the lands patented. And it is well settled that mistakes in the surveys cannot be corrected by the judicial department of the government.' Chap v. Brandt, 45 Minn. 93, 47 N. W. 461. 'That the power to make and correct surveys of the public lands belongs to the political department of the government and that while the lands are subject to the supervision of the general land office, the decisions of that bureau in all such cases, like that of other special tribunals upon matters within their exclusive jurisdiction, are unassailable by the courts, except by a direct proceeding; and that the latter have no concurrent or original power to make similar corrections, if not an elementary principle of our land law, is settled by such a mass of decisions of this court that its mere statement is sufficient. The reason of this rule is that great confusion and litigation would ensue if the judicial tribunals were permitted to interfere and overthrow the public surveys on no other ground than an opinion that they could have the work in the field better done and divisions more equitably made than the department of the public lands could do'; Cragin v. Powell, 128 U. S. 691."

II.

The surveys of the Darling-Major line made in 1868 and 1874 are the senior surveys of the boundary line and must prevail over the junior survey made by Carpenter in 1902.

The real question now for this Court to determine is not which of the two lines is correct, but where the boundary line was originally located, since it is utterly immaterial which of the two lines represents the correct delimitation of the astronomical parallel.

The Darling-Major line represents the senior surveys and must control over the recent Carpenter survey.

The Carpenter survey should not prevail because:

1. It is not shown to have been made by proper authority.

> "It is the acts done on the ground by the surveyor in pursuance of lawful authority which constitutes the survey."
>
> 5 Cyc. p. 949.
>
> "A survey is not usually admissible in evidence as showing the location of boundaries if it does not appear that it was made by proper authority."
>
> 4 R. C. L., Sec. 54, p. 116.

2. It was simply a new and independent survey, and does not purport to show the line as originally established.

> "Original corners, as established by the government surveyors, if they can be found, or the places where they were originally established, if they can be definitely determined, are conclusive,

without regard to whether they were located correctly or not."

5 Cyc. 873.

Washington Rock Co. v. Young, 29 Utah 108:

"The law is well settled that an original survey of lands, upon the faith of which property rights have been based and acquired, controls over surveys subsequently made which injuriously affects such rights."

29 Utah 108, 118.

In Clement v. Parker, 125 U. S. 309, 332, it was said:

"It is unquestionably true that a junior survey cannot control or enlarge the dimensions of a senior survey. We understand this to mean, that when the location of a survey is or can be ascertained and determined by its own marks upon the ground, its own calls and courses and distances, it cannot be changed or controlled or enlarged or diminished by the marks or lines of an adjoining junior survey; but when, from the disappearance of these original landmarks, caused by time and other agencies, from the senior survey, the location of a particular line, or the identity of a corner, is left in uncertainty or becomes the subject of controversy, then the original and well established marks found upon a later survey made by the same surveyor about the same time, and adjoining the one in dispute, are regarded as legitimate evidence, not to contest or control, but to elucidate, throw light upon, and thus aid the jury in discovering the exact location of the older survey."

1 Dembitz on Land Titles, Sec. 4.

5 Cyc. 874, 875.

4 Am. & Eng. Enc. of Law, 787.
Goodman v. Myrick, 5 Ore. 65.
Payne v. English, 79 Calif. 540.
Irvin v. Rotramel, 68 Ill. 11.
Clement v. Northumberland Coal Co., 87 Pa. St. 291.
Hubbard v. Dusy, 80 Calif. 281, 22 Pac. 214.
Nesselrode v. Parish, 59 Iowa 570, 13 N. W. 746.
Billingsley v. Bates, 30 Ala. 376, 66 Am. Dec. 126.

A subsequent survey cannot alter or control an original survey. Where it can be traced or proved it must govern.

In Diehl v. Zanger, 39 Mich. 601, 605, where the first survey of lots involved in litigation was made by one Campau, a resurvey, made after the disappearance of the monuments of the original survey, was for the purpose of determining where they were, and not where they should have been. In delivering the opinion Mr. Justice Cooley said:

> "Nothing is better understood than that few of our early plats will stand the test of a careful and accurate survey without disclosing errors. This is as true of the government surveys as of any others, and if all the lines were now subject to correction on new surveys, the confusion of lines and titles that would follow would cause consternation in many communities. Indeed, the mischiefs that must follow would be simply incalculable, and the visitation of the surveyor might well be set down as a great public calamity. But no law can sanction this course. The surveyor has mistaken entirely the point to which his attention should have been di-

rected. The question is not how an entirely accurate survey would locate these lots, but how the original stakes located them. * * * The city surveyor should, therefore, have directed his attention to the ascertainment of the actual location of the original landmarks set by Mr. Campau, and if those were discovered they must govern. If they are no longer discoverable, the question is where they were located."

In the City of Racine v. Emerson, 85 Wis. 80, 86, Mr. Justice Orton said:

"The fact, generally known and quite apparent in the records of courts, is that two consecutive surveys by different surveyors seldom, if ever, agree; and the greater number of surveys, the greater number of differences and disagreements will occur. When two surveys disagree, the correct one cannot be determined by still another survey. It follows that resurveys are of very little use in such a case as this, except to confuse it."

"In resurveying a tract of land according to a former plat or survey, the surveyors only function or right is to relocate upon the best evidence obtainable, the corners and lines at the same places where originally located by the first surveyor on the ground. Any departure from such purpose and effort is unprofessional, and so far as any effect is claimed for it, unlawful."

Pereles v. Gross, 126 Wis. 122.

3. The original Darling-Major line had been established by proper authority more than thirty years, and was the true and subsisting boundary line when the Carpenter survey was made.

4. The Carpenter survey was never accepted, nor confirmed by Congress nor by either of the States or Territories involved.

5. The Carpenter survey not only changes the boundary line between Colorado and New Mexico, but would require a change in the S. W. corner of Kansas and the N. W. corner of Oklahoma. The Carpenter line is one half mile north of the S. W. corner of Kansas.

6. The adoption of the Carpenter survey would injuriously affect public and private rights based upon the original line established by Darling and Major.

7. Carpenter was a trespasser upon territory over which Colorado then had dominion and exercised sovereignty, his survey was made without the consent of the State of Colorado, and his obliteration and destruction of corners and monuments of the boundary line then in existence and which had been established more than thirty years prior to his survey, was illegal and unauthorized.

8. New Mexico is bound by the action of Congress in refusing to confirm or accept the Carpenter survey.

III.

The Darling-Major line is the boundary between these states by reason of the recognition and acceptance thereof by the territories and later by the States of Colorado and New Mexico, and by the United States from the time of the survey thereof until the time this suit was filed.

The 37th parallel of north latitude, where it formed the boundary line between the Territories of New Mexico and Colorado, was surveyed, established and marked upon the earth's surface by the most approved methods of the

times (and evidenced by mile corners and monuments), by E. N. Darling, United States Surveyor and Astronomer, in the year 1868 and by John J. Major, United States Surveyor and Astronomer, in the year 1874. These surveys were examined and approved by the Commissioner of the General Land Office and were thereafter officially recognized by the United States as the delineation of the 37th parallel of north latitude in that vicinity and as the boundary.

For more than 30 years the position of the Darling-Major line remained undisputed and the correctness of its technical execution unquestioned. As so established and monumented, the Darling-Major line was recognized, accepted and acquiesced in by Colorado, New Mexico and the United States and is now recognized as the true boundary between Colorado and New Mexico by the State of Colorado and by the United States. Colorado has held rightful and lawful possession of and exercised dominion and sovereignty (and now claims the same) over the territory down to the Darling-Major line since the establishment thereof.

New Mexico is not only bound by the acts of the United States in surveying, establishing, monumenting and thereafter recognizing and adopting the Darling-Major line as the true boundary but is also estopped by the doctrines of long possession, prescription, laches and acquiescence from now asserting a different boundary.

Rhode Island v. Massachusetts, 4 How. 591;
Indiana v. Kentucky, 136 U. S. 479;
Virginia v. Tennessee, 148 U. S. 503;
Louisiana v. Mississippi, 202 U. S. 1;
Maryland v. West Virginia, 217 U. S. 1.

In Rhode Island v. Massachusetts, 4 Howard 591, decided in 1846, it was alleged by Rhode Island that there was a mistake in the location of the boundary line between said states. The bill was dismissed. The Court said:

> "More than two centuries have passed since Massachusetts claimed and took possession of the territory up to the line established by Woodward and Saffrey. This possession has ever since been steadily maintained, under an assertion of right. It would be difficult to disturb a claim thus sanctioned by time, however unfounded it might have been in its origin. * * * Surely this, connected with the lapse of time, must remove all doubt as to the right of the respondent under the agreements of 1711 and 1718. No human transactions are unaffected by time. Its influence is seen on all things subject to change. And this is peculiarly the case in regard to matters which rest in memory, and which consequently fade with the lapse of time, and fall with the lives of individuals. For the security of rights, whether of states or individuals, long possession under a claim of title is protected. And there is no controversy in which this great principle may be involved with greater justice and propriety than in a case of disputed boundary."

In Indiana v. Kentucky, 136 U. S. 479, the territory in dispute was an island in the Ohio river, over which Kentucky had long exercised dominion and sovereignty. In its opinion this Court said:

> "This long acquiescence in the exercise by Kentucky of dominion and jurisdiction over the island is more potential than the recollections of all the wit-

nesses produced on either side. Such acquiescence in the assertion of authority by the State of Kentucky, such omission to take any steps to assert her present claim by the State of Indiana, can only be regarded as a recognition of the right of Kentucky too plain to be overcome, except by the clearest and most unquestioned proof. It is a principle of public law universally recognized, that long acquiescence in the possession of territory and in the exercise of dominion and sovereignty over it, is conclusive of the nation's title and rightful authority."

The Court also referred to the case of Rhode Island v. Massachusetts and quoted therefrom with approval that part of the opinion relative to the long possession of Massachusetts and the delays in alleging any mistake in the action of the colonies, which we have hereinbefore set forth.

The Court adds:

"Vattel in his Law of Nations, speaking on the same subject, says:

'The tranquility of the people, the safety of States, the happiness of the human race do not allow that the possessions, empire and other rights of nations, should remain uncertain, subject to dispute and ever ready to occasion bloody wars. Between nations, therefore, it becomes necessary to admit prescription founded on length of time as a valid and incontestable title.' Book II, c. 11, Sec. 149. And Wheaton in his International Law, says: 'T writers on natural law have questioned how far that peculiar species of presumption arising from the lapse of time, which is called prescription, is justly applicable as between nation and nation;

but the constant and approved practice of nations shows that by whatever name it be called, the uninterrupted possession of territory or other property for a certain length of time by one State excludes the claim of every other in the same manner as, by the law of nature and the municipal code of every civilized nation, a similar possession by an individual excludes the claim of every other person to the article of property in question. Part. II, c. IV. Sec. 164.' * * * 'The long acquiescence of Indiana in the claim of Kentucky, the rights of property of private parties which have grown up under grants from that State, the general understanding of the people of both States in the neighborhood, forbid at this day, after a lapse of nearly a hundred years since the admission of Kentucky into the Union, any disturbance of that State in her possession of the island and jurisdiction over it'."

Virginia v. Tennessee, 148 U. S. 503, approved the doctrine announced in the foregoing cases.

It was claimed by Virginia that by the charters of the English sovereigns, under which the colonies of Virginia and North Carolina were formed, the boundary line between them was intended and declared to be a line running due west from a point on the Atlantic Ocean on the parallel of latitude thirty-six degrees and thirty minutes north; that the State of Tennessee, having been created out of the territory formerly constituting a part of North Carolina, the same boundary line continued between her and Virginia, and also that the boundary line claimed by Tennessee does not follow this parallel of latitude but varies from it by running too far North, so as to unjustly include a strip of land about one hundred and thirteen miles in length, and varying from two to eight miles in

width, over which she asserts and unlawfully exercises sovereign jurisdiction.

Tennessee contended that the boundary line, as declared in the English Charters, between the colonies of Virginia and North Carolina was run and established by commissioners appointed by Virginia and Tennessee after they became States of the Union, by Virginia in 1800 and by Tennessee in 1801; that the line they established was subsequently approved in 1803 by the legislative action of both States, and has been recognized and acted upon as the true and real boundary between them ever since until the suit was filed—a period of more than 85 years. Tennessee further contended that the line thus established and acted upon was not open to attack as to its correctness, but must be held to be the true boundary line between the States, even though some deviations from the line of the parallel of latitude thirty-six degrees and thirty minutes north may have been made by the commissioners in the measurement and demarcation of the line. The decision was adverse to Virginia. The Court held:

> "A boundary line between States or Provinces as between private persons, which has been run out, located and marked upon the earth, and afterwards recognized and acquiesced in by the parties, for a long course of years, is conclusive, even if it be ascertained that it varies somewhat from the courses given in the original grant, and the line so established takes effect, not as an alienation of territory, but as a definition of the true and ancient boundary. Lord Hardwicke, in Penn. v. Lord Baltimore, 1 Vesey Sen. 444, 448; Boyd v. Graves, 4 Wheat. 513; Rhode Island v. Massachusetts, 12 Pet. 657, 734; United States v. Stone, 2 Wall. 525, 537;

Kellogg v. Smith, 7 Cush. 375, 382; Chenery v. Waltham, 8 Cush. 327; Hunt on Boundaries, (3rd Ed.), 306."

The Court adds:

"There are also moral considerations which should prevent any disturbance of long recognized boundary lines; considerations springing from regard to the natural sentiments and affections which grow up for places on which persons have long resided; the attachment to country, to home and to family, on which is based all that is dearest and most valuable in life." * * *

"The compact in this case having received the consent of Congress, though not in express terms, yet impliedly, and subsequently, which is equally effective, became obligatory and binding upon all the citizens of both Virginia and Tennessee. **Nor is it any objection that there may have been errors in the demarcation of the line which the States thus by their compact sanctioned. After such compacts have been adhered to for years neither party can be absolved from them upon showing errors, mistakes or misapprehension of their terms, or in the line established; and this is a complete and perfect answer to the complainant's position in this case."**

In Louisiana v. Mississippi, 202 U. S. 1, 53, the Court said:

"Moreover, it appears from the record that the various departments of the United States Government have recognized Louisiana's ownership of the disputed area; that Louisiana has always asserted it; and that Mississippi has repeatedly recognized it, and not until recently has disputed it.

> The question is one of boundary, and this Court has many times held that, as between the States of the Union, long acquiescence in the assertion of a particular boundary and the exercise of dominion and sovereignty over the territory within it should be accepted as conclusive, whatever the international rule might be in respect of the acquisition by prescription of large tracts of country claimed by both. Virginia v. Tennessee, 148 U. S. 503; Indiana v. Kentucky, 136 U. S. 479; Missouri v. Kentucky, 11 Wall. 395; Rhode Island v. Massachusetts, 4 How. 591."

Maryland v. West Virginia, 217 U. S. 1, is directly in point. This case involved an attempt on the part of the State of Maryland to substitute a new meridian line as her western boundary in lieu of a line for many years generally acquiesced in and accepted as the actual boundary. The long established boundary line was irregular, contained many offsets and was not even intended as an interstate boundary line at the time it was surveyed. It was contended by Maryland and apparently not disputed by West Virginia, that the survey of the new meridian contended for by Maryland was much more accurate than the old established and recognized line. West Virginia contended that the long recognized line was the boundary notwithstanding its jogs, irregularities, imperfections and different location and regardless of the fact that it was not intended as a fixation of an interstate boundary line when it was surveyed. The Court sustained the claims of West Virginia and caused the long recognized boundary to be resurveyed and remonumented by commissioners.

In the opinion, after referring to the doctrine laid down by this Court in previous cases and quoting extensively from the authorities, this Court said:

"An application of these principles can not permit us to ignore the conduct of the States and the belief of the people concerning the purpose of the boundary line known as the old state, or Deakins line, and to which their deeds called as the boundary of their farms, in recognition of which they have established their allegiance as citizens of the State of West Virginia, and in accordance to which they have fixed their homes and habitations. * * *.

The effect to be given to such facts as long continued possession 'gradually ripening into that condition which is in conformity with international order', depends upon the merit of individual cases as they arise. I Oppenheim International Law, Sec. 243. In this case we think a right, in its nature prescriptive, has arisen, practically undisturbed for many years, not to be overthrown without doing violence to principles of established right and justice equally binding upon States and individuals. Rhode Island v. Massachusetts, 12 Pet. 657. * * *.

Upon the whole case, the conclusions at which we have arrived, we believe, best meet the facts disclosed in this record, are warranted by the applicable principles of law and equity, and will least disturb rights and titles long regarded as settled and fixed by the people most to be affected."

IV.

The Carpenter survey has no legal status as a boundary line because it was made without the consent of the State of Colorado, never received the approval of the state, was rejected by Congress and has always been disregarded by every department of the government of the United States.

New Mexico claims that the Carpenter line is the boundary between the states because it represents a more accurate location of the position of the 37th parallel of north latitude than does the Darling-Major line, although it is conceded by the witnesses for New Mexico that it is not an exact fixation of the parallel and that the Carpenter line deflects in a number of places from the actual parallel (pp. 543, 548-549, 582-583, 625).

But irrespective of the question of accuracy, the Carpenter line is not the legal boundary. At the time of its execution Colorado had been a state for more than a quarter of a century with her southern boundary on the Darling-Major line. The Carpenter line is located almost entirely upon the soil of Colorado and its execution was a trespass upon her territory. The survey was made without the consent of Colorado, has never been accepted but has always been disregarded by the state as marking her southern boundary. The mere fact that Carpenter made an *ex parte* survey is of no binding force.

The Carpenter survey was reported to Congress and an effort was made to confirm it by resolution and thereby to establish it as the boundary by legislation. The purpose of the resolution was to establish a new and different boundary from the then existing and recognized Darling-Major line. That this could not be done without the

consent of the State of Colorado was at once recognized by the Attorney General of the United States, who so advised the President. The opinion of the Attorney General, set forth in the veto message of the President, is as follows:

> "I have the honor to report, with respect to joint resolution S. R. 78, referred by you to this department, that the purpose of the said resolution appears to be to correct the boundary line between the Territory of New Mexico and the States of Colorado and Oklahoma. The practical effect of establishing the new boundary line, so far as the State of Colorado is concerned, would be to remove from the jurisdiction of that State and add to the Territory of New Mexico a strip along nearly the whole of the southern boundary of the said State, in which there are located at least five post-offices and an appreciable number of inhabitants.
>
> So far as I am aware no action has been taken by the legislature of the State of Colorado assenting to or accepting the location of the boundary as proposed in this resolution, and from such inquiry as I have been able to make in the very limited time since the resolution reached me, I am led to think that such assent or acceptance on the part of the State is improbable. Under these circumstances, I think it is of very doubtful expediency to have the line mentioned in the resolution accepted by the United States as the true boundary. It is not necessary to express an opinion as to the legal effect of such a resolution upon the rights of the United States or of the Territory of New Mexico, or the duties of federal or territorial officers; but it is clear that the resolution would not be binding upon

> the State of Colorado, and its adoption might lead to conflicts of jurisdiction within the long strip of territory to which I have referred, and possibly to the escape from legal punishment of those guilty of crimes, committed within the said strip. If it is deemed desirable to establish the true boundary line, an appropriate method to effect this would be to invoke by appropriate proceedings, the original jurisdiction of the Supreme Court. I therefore respectfully advise that the joint resolution in question do not receive your signature."

The refusal of Congress to sanction the proposed change in the boundary, left the boundary line as it then stood, as it was when originally established by Darling and Major, and as it was when Colorado was admitted into the Union.

Neither Congress by directing a resurvey, nor the General Land Office by causing the survey to be made has performed an act which is binding upon the State of Colorado, in the absence of its recognition or ratification of these acts.

The Carpenter line is now abandoned.

V.

The Darling-Major line is the legal boundary between the two states and the Court should appoint commissioners to restore the Darling monuments unlawfully destroyed by Carpenter and to reestablish and remonument the boundary.

Colorado by her cross-bill prays that the Court take such measures as may be necessary to correctly restore, reestablish and remonument the Darling-Major line as the boundary between the states.

Pursuant to his instructions Carpenter destroyed a large number of the monuments set by Darling in 1868 and obliterated the marks on the Macomb monument. In each case he gives the location of the destroyed or mutilated monument by bearing references to the monument established by him (see Carpenter field notes attached to bill of complaint). The Carpenter monuments are standing and the location of the Darling monuments may be ascertained by competent engineers by consulting the Carpenter and Darling field notes and by search. The General Land Office of the United States has restored a number of the Darling monuments and has retraced the Major line from the southwest corner of Kansas to the Macomb monument. (See maps, Colorado Exhibits 6 to 16, inclusive, p. 536 of the record, and plaintiff's Exhibit 12, p. 792, also field notes, plaintiff's Exhibit 11, pp. 714 to 792.)

At present the most conspicuous monuments are those set by Carpenter, while throughout the boundary there are two sets of monuments paralleling each other. Confusion will reign until the true boundary is officially monumented in an unmistakable manner and the Carpenter monuments removed.

The Carpenter survey is abandoned and its monuments should not be left to vex and confuse future generations.

CONCLUSION.

The State of Colorado insists that this Honorable Court should by its judgment and decree declare and establish the line as surveyed by Darling and Major to be the legal boundary between the two states and that, pursuant to the prayer of her cross-bill, the Court should appoint commissioners to remonument, reestablish and restore the line of the said surveys as such boundary line.

Respectfully submitted,

WAYNE C. WILLIAMS,
Attorney General of Colorado,

OLIVER DEAN,
Assistant Attorney General,

CHARLES ROACH,
Deputy Attorney General,

Solicitors for the Defendant.

DELPH E. CARPENTER,
Special Counsel for Colorado.

SUPREME COURT OF THE UNITED STATES.

No. 12, Original.—October Term, 1924.

The State of New Mexico, Complainant,
vs.
The State of Colorado.

[January 26, 1925.]

Mr. Justice Sanford delivered the opinion of the Court.

This is a suit in equity, within the original jurisdiction of this Court, brought by the State of New Mexico against the State of Colorado, in 1919, to settle a controversy as to the location of their common boundary line. Under the Acts of Congress under which they were admitted into the Union and their respective Constitutions, this is the 37th parallel of north latitude between its intersections with the 103rd and 109th meridians of longitude west from Greenwich.[1]

The only dispute is as to the location of this line. Different surveys have been made. New Mexico alleges in its bill that the true line is that which was surveyed and marked by Howard B. Carpenter in 1903, and prays that this be decreed to be the boundary. Colorado, in an answer and cross bill, alleges that the true line is that which was surveyed and marked by Ehud N. Darling in 1868, and extended by John J. Major and Levi S. Preston in 1874 and 1900; and prays that this line be decreed to be the boundary, and that, in so far as necessary, it be restored and remarked.

The case has been heard on evidence taken by examiners, supplemented by a stipulation of the parties. The material facts are these: The Territory of New Mexico was established in 1850,[2] and the Territory of Colorado in 1868.[3] Under the Acts of Congress their

[1] The 26th and 32nd meridians west from Washington. Colorado: Act of Mar. 3, 1875, c. 139, 18 Stat. 474; Constitution, Art. I. New Mexico: Act of June 20, 1910, c. 310, 36 Stat. 557; Constitution, Art. I, Sec. 2.

[2] 9 Stat. 447, c. 49.

[3] 12 Stat. 172, c. 59.

1861

common boundary was the 37th parallel, between the 103rd and 109th meridians.

In 1867 Congress made an appropriation for the "survey of the thirty-seventh parallel of north latitude, so far as it constitutes the northern boundary of the Territory of New Mexico."[4] The Commissioner of the General Land Office employed Ehud N. Darling, a surveyor and astronomer, to make this survey. He made the survey in 1868, and filed his field notes in the Land Office. In accordance with his instructions, he adopted as the northeast corner of New Mexico a stone monument that had been established by Capt. J. N. Macomb, an Army Engineer, in 1859, to mark the intersection of the 37th parallel with the 103rd meridian, and, taking this as his beginning point, surveyed and marked the line of the parallel, as determined by astronomical observations and calculations for latitude, westwardly to the 109th meridian, a distance of over 331 miles. As shown by the field notes he established on this line eleven "astronomical monuments", with "mile corners", usually marked stones, at the end of each mile where the nature of the ground made this possible, otherwise locating the mile corners by triangulation. In 1869 the Commissioner of the General Land Office approved these field notes, and published an official "Map of the Boundary Line between Colorado & New Mexico on the 37th Parallel North Latitude," made in conformity to them.

Several years later the Commissioner of the General Land Office employed John J. Major, a surveyor and astronomer, to survey and mark the remaining portion of the southern boundary of the Territory of Colorado, extending along the 37th parallel to the 102nd meridian. Major made this survey in 1874, and marked the line of the parallel between the Macomb monument and that meridian. The field notes of this survey were filed in the Land Office and approved by the Commissioner.

In 1876 the State of Colorado was admitted into the Union, with the same southern boundary line as that of the Territory.[5]

Some years later the 103rd meridian was established on a line known as the "Cimarron Meridian", intersecting the 37th parallel a short distance east of the Macomb monument. Thereafter the United States Surveyor General employed Levi S. Preston, a

[4] 14 Stat. 457, 466, c. 167.

[5] President's Proclamation, Aug. 1, 1876, 19 Stat. 664. See note 1, *supra*.

deputy surveyor, to resurvey and retrace the north boundary of New Mexico between the Macomb monument and the Cimarron meridian. Preston made this survey in 1900, retracing and remarking this portion of the Major line, and established at the intersection of that line and the Cimarron meridian, about two miles east of the Macomb monument, a sandstone corner since known as the Preston monument. The field notes of this resurvey were filed in the office of the Surveyor General and approved by him.

In 1901 the State of Colorado appointed a commissioner to resurvey and remark a portion of its southern boundary line as surveyed and established by Darling, on which one of his astronomical monuments had disappeared and a number of mile corners could not be found.[6] Both the Territory of New Mexico and the Interior Department were invited to join in this resurvey, but neither did so; and it was made by the Colorado commissioner alone.

In 1902 an examiner of surveys in the General Land Office, on an inspection of about sixty miles of Darling's original line, reported that but few of the corners then remained, and that the line was evidently erroneously established between identified monuments; and the Commissioner urged that the entire southern line of Colorado be resurveyed and reestablished. Thereupon, on the recommendation of the Secretary of the Interior,[7] Congress made an appropriation for "the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma" between the 102nd and 109th meridians.[8] The Commissioner of the General Land Office employed Howard B. Carpenter, a surveyor and astronomer, to make this resurvey. He was not directed to retrace the lines previously established, but to make an independent survey, and was specifically instructed to "obliterate" all evidences of the corners and monuments that had been set by Darling. Carpenter completed this resurvey in 1903, and filed his field notes in the

[6]Colorado Laws, 1901, c. 37.

[7]57th Cong., 1st Sess., H. R. Doc. No. 604.

[8]Act of July 1, 1902, 32 Stat. 552, 574, c. 1351. The 37th parallel was also the common boundary of Colorado and Oklahoma, between the 102nd and 103rd meridians.

Land Office in 1904. These were approved by the Commissioner. Carpenter surveyed an entirely different line from the Darling and Major-Preston lines. His new line commenced on the 109th meridian, at some distance north of the Darling line, and ran for the greater portion of the boundary north of that line, although crossing it shortly before reaching the Macomb monument and running for the remainder of the distance somewhat to the south of the Darling and Major-Preston lines. Taken as a whole, its effect, if established as the boundary, would be to transfer a large strip of territory from Colorado to New Mexico, including the greater portions of one town and two villages, and five post offices. Carpenter established on his new line eight stone astronomical monuments, and mile corners, marked by iron posts, wherever it was practicable; and whenever he found one of Darling's mile corners or astronomical monuments, after noting its location, either destroyed it completely or obliterated the marks upon it.

After the Commissioner's approval of the Carpenter line the General Land Office ceased to recognize the Darling and Major-Preston line as the boundary between Colorado and New Mexico in so far as related to the public lands, as it had theretofore done, and for a time recognized the Carpenter line as the boundary.

In 1908 Congress passed a Joint Resolution accepting the line of the Carpenter survey "as the proper location of the thirty-seventh parallel and the true boundary line" between the States of Colorado and Oklahoma and the Territory of New Mexico.[9] This resolution was, however, vetoed by the President; and no further action was taken by Congress.

After this veto by the President the General Land Office abandoned its recognition of the Carpenter line, and thereafter continued to recognize the Darling and Major-Preston line as the boundary.

In 1912 the State of New Mexico was admitted into the Union, with the same northern boundary line as that of the Territory.[10]

In 1917 about forty miles of Darling's original line included in the resurvey that had been made by the Colorado commissioner, were resurveyed and restored under the direction and with the approval of the Commissioner of the General Land Office.

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[9]60th Cong., 2d Sess., Sen. Doc. No. 604.

[10]President's Proclamation, Jan. 6, 1912, 37 Stat. 1723. See note 1, *supra*.

In addition to the foregoing matters the stipulation of the parties recites:—"That, except as may otherwise be shown by the record in this case as now made, for more than thirty years the position of the Darling line, from the Macomb Monument to the . . . 109th meridian of longitude West from Greenwich, remained undisputed and the correctness of its technical execution unquestioned, and, as so established, the said Darling line has been recognized and acquiesced in by the United States, by the Territory and State of Colorado, by the Territory of New Mexico and by the State of New Mexico except as otherwise indicated by the bringing of this suit, and has been and is now recognized and accepted by the Land Department of the United States, in its surveys of the public domain, as the boundary line between Colorado and New Mexico from the Macomb Monument westward, except so far as may otherwise appear (if it does otherwise appear) by the record in this case; that from 1868 to the present time the Territory and later the State of Colorado . . . has claimed and exercised dominion and sovereignty, and now claims the same, over the territory down to the boundary as established by said Darling and no farther; that county lines have been formed, towns and settlements have grown up, school districts, election districts, voting precincts, and land districts and water districts have been created with reference to said line; public officers have been elected, property has been assessed and taxes levied and collected under the authority of the Territory and State of Colorado, and its courts of both civil and criminal jurisdiction have exercised jurisdiction in all places north of said Darling line and the Territory and State of New Mexico has exercised like jurisdiction in all places south of said line; that government postoffice[s] have been established as being in Colorado when north of said line and as in New Mexico when south of said line, and that public land surveys on both sides of said line have been closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico have been fixed by reference to said line. That since 1874 the Major survey and marking of the 37th parallel of North latitude . . . westward to the Macomb Monument has been the recognized and accepted South boundary of Colorado between said points and since the acceptance of the Preston survey, retracement and remarking of said line, in the year 1901, said line as remarked and retraced by Preston between said Macomb

Monument and the Preston Monument, at the intersection of said parallel with the Cimarron Meridian, has been and now is the recognized and accepted boundary between Colorado and New Mexico at all points between said Monuments."

There is some evidence, of a very general nature, as to the relative correctness of the location of the line of the 37th parallel as established by Darling, Major and Preston, and by Carpenter. It may well be that neither is entirely correct. We have no occasion, however, to determine this question, or to settle the precise location of the parallel line as an original matter, since, upon the uncontradicted facts, it is entirely clear that the line of the parallel as surveyed and marked by Darling westwardly from the Macomb monument, and by Major and Preston from the Macomb monument to the Preston monument, must be now taken as the established boundary between the two States.

There is no question as to the portion of this line between the Macomb monument and the Preston monument, since it is expressly agreed that since this line was surveyed by Major in 1874 and resurveyed by Preston in 1901 it "has been and now is the recognized and accepted boundary between Colorado and New Mexico at all points between said Monuments."

The remainder of the line as surveyed and marked by Darling from the Macomb monument to the 109th meridian, must likewise be held to be the recognized and established boundary.

From 1868, when Darling ran and marked the line of the 37th parallel, to 1919, when this suit was brought, a period of more than half a century, his line was recognized and acquiesced in, successively, as the boundary between the two Territories, between the State of Colorado and the Territory of New Mexico, and between the two States. In *Missouri* v. *Iowa*, 7 Howard 660, which involved the location of the boundary line between the two States running with "the Indian Boundary line," it was held that governments are bound by the practical line that has been established as their boundary, although not precisely a true one; and that as the United States before either of the States had been admitted into the Union and after Missouri had been admitted but while Iowa still remained a Territory, had recognized and adopted the line of a certain survey as the "Indian boundary line" and was committed to that line as the boundary of Missouri, Iowa when admitted was bound by the

recognition and adoption of that line by the United States, her predecessor, and could not be heard to disavow it as the boundary. So here, the United States, from 1868 to 1876, while still owning the public domain and having paramount jurisdiction as to territorial boundaries, recognized and adopted the Darling line as the true location of the parallel and the boundary between the two Territories, and thereafter, from 1876 to 1912, while retaining paramount jurisdiction as to New Mexico, recognized this line as the boundary between the State of Colorado and the Territory of New Mexico; and the State of New Mexico on being admitted into the Union was bound by the previous recognition and adoption of this line by the United States, her predecessor, and cannot be heard to disavow the boundary thus recognized. The effect of this recognition of the Darling line by the United States was not impaired by the temporary recognition of the Carpenter line by the General Land Office, from 1904 to 1908. The United States had resumed its recognition of the Darling line several years before New Mexico was admitted as a State. Further, after Colorado had been admitted into the Union in 1876 its right to rely upon the line previously established could not be impaired by any subsequent action on the part of the United States. Thus, after the Land Department has surveyed and disposed of public lands, the rights therein acquired are not affected by corrective surveys subsequently made by the Department. *United States* v. *Investment Co.*, 264 U. S. 206, 212, and cases there cited. And, independently of these matters, New Mexico is bound by its own recognition and adoption of the Darling line, from 1912 to the beginning of this suit, after its admission to statehood. *Missouri* v. *Iowa, supra*, p. 677.

It results that the bill of New Mexico, praying the establishment of the Carpenter line, must be dismissed; and that, under the cross bill of Colorado, the Darling and Major-Preston line must be decreed to be the boundary between the two States.

This boundary line should now be resurveyed and remarked by a commissioner or commissioners appointed by the court; such action to be subject to its approval. *Missouri* v. *Iowa, supra*, p. 679; *Indiana* v. *Kentucky*, 136 U. S. 479, 519; *Oklahoma* v. *Texas*, 260 U. S. 606, 640.

The parties may submit within thirty days the form of a decree to carry these conclusions into effect.

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PETITION FOR MODIFICATION OF OPINION, AND DECREE PROPOSED BY COMPLAINANT

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1924

ORIGINAL, NO. [illegible] #4

State of New Mexico

vs.

State of Colorado

[illegible]

IN THE SUPREME COURT OF THE UNITED STATES

October Term, 1924

Original, No. 12

STATE OF NEW MEXICO

vs.

STATE OF COLORADO

PETITION FOR MODIFICATION OF THE OPINION

To the Honorables, the Chief Justice and Associate Justices of the Supreme Court of the United States.

Your petitioner, the State of New Mexico, complainant in the above entitled cause, respectfully shows to the Court, that a modification of the terms of the opinion of the Court is necessary fully to express the views to which the decree must conform, and another is desirable in the interest of economy, which can be made without affecting the result, and submits the following statement

First: The court in its opinion says that the line as surveyed and marked by Darling from the Macomb monument to the 109th meridian, must be held to be the recognized and established boundary between the two States, but appears to have overlooked the fact, shown by uncontradicted testimony, that the line was not completely surveyed and marked by Darling as is distinctly set forth under the second point in the brief for complainant in pages four to six of said brief. It appears from that uncontradicted

testimony that while Darling's notes show, obviously for the purpose of correcting his error in running far south of the 37th parallel of latitude, that he ran his line back easterly from the 214th mile to the 191st mile, yet he never actually ran that distance, but made an imaginary and fictitious record, so that he never connected his astronomical monuments six and seven. The opinion of the court says that this line should now be re-surveyed and re-marked by a commissioner or commissioners appointed by the court, but it is clear that those twenty-three miles of Darling's line never were surveyed by him, and can not be re-surveyed.

If this patent defect in Darling's work is to be treated as of no importance to the decision by the court, as it would be reasonable to infer from the opinion, it is suggested that the opinion might be amended, by adding to the paragraph near the end of the opinion, which closes with the words, "decreed to be the boundary between the two states," the following language: "and the restoration and resurvey of that portion of the Darling line between the 203rd mile corner, and the 8th astronomical monument, resurveyed under the authority of the Commissioner of the General Land Office by William C. Perkins in 1917, a plat of which appears in the printed record between pages 792, and 793, is to be taken and considered as a part of the Darling line, now declared, with the Major-Preston line, to be the boundary between the two states."

Unless this, or something equivalent, is put in the opinion so as to make a complete line from the 191st mile corner, to the 7th astronomical monument, a portion of which otherwise is not in Darling's original survey in the light of the uncontradicted testimony hereinbefore mentioned, the opinion will not provide for a complete line.

Second: The opinion of the court in the paragraph next to the last, declares that the boundary line should now be resurveyed, and remarked, by a commissioner or commissioners appointed by the court; and it is now urged upon the court that this is not nec-

essary in order to carry into effect the judgment of the court, and complainant prays that this may be omitted from the decree to be made by the court, as it would impose a very large expense upon the parties to this cause, which would be a most grievous burden to the complainant, if not to the defendant. It would necessitate putting into the field a large party, including surveyors, astronomers, and other assistants, presumably as large as the party employed by Mr. Carpenter, which appears, on pages 9 and 10 of the Record to have numbered twenty-two persons in 1902, and twenty-five in 1903, and in addition it appears in the testimony, that Mr. Arthur Kidder, assisted in the astronomical work during the whole of Carpenter's survey. It would be necessary to keep such a party in the field for many months to re-survey the whole of the Darling and Major Preston line, and such work, wherever it may be necessary to identify the Darling line, could well be performed, like the restoration by Mr. Perkins in 1917, under the authority of the Commissioner of the General Land Office; and it is well here to note that the present litigation has clearly been brought about only by the action of the General Land Office, in holding that a new survey was necessary, upon which estimates of costs were made and appropriations asked by the Land Office and for which appropriations were made by the Congress of the United States, after which the General Land Office attempted to recognize officially the new or Carpenter line, because had it not been for this course of conduct on the part of the Land Office, it is inconceivable that any controversy between the two states ever would have arisen. It is also well to remember, that the attempted re-survey and restoration by Perkins, in 1917, which clearly shows Darling's failure to make any connection between the 6th and 7th astronomical monuments, was made only after the General Land Office was compelled to abandon its intention to adopt and recognize the Carpenter line because of its failure to get Congress to recognize it after the Congressional recognition had been vetoed by President Roosevelt on the ground that Congress had no jurisdiction over such questions of boundaries

between states. In this connection it is not improper to call attention to the financial condition of the complainant. The assessed value of all property in New Mexico in 1920 was $405,000,000. For 1923 the assessed value of all property was $315,000,000, and in 1924 it will not exceed $313,000,000. More than 4,000 farms have been abandoned in the last two years, and in 1924 nearly 60,000 farmers were without the money or credit to purchase seed and other things needed for farming operations. In 1919 the value of farm products was estimated at $40,000,000 and for 1923 it was only $20,000,000, in spite of the added value of a new crop—cotton. This enormous reduction in the assessed value of property is due almost, if not quite, entirely to several years of drought, which have quite obliterated the cattle raising business of the state which it is believed previously constituted fully one third of all the products in the state, and which, in many places caused such complete loss of crops, that farmers were not able to secure enough to provide seed for the next year.

The state is having the greatest imaginable difficulty just at this present time, in making appropriations sufficient to carry on the ordinary operations of the government, and to meet obligations of various kinds which have been already incurred, the constitutional limit of taxation, for state purposes having been reached.

The cost of the proposed re-survey, it is believed, would probably reach $40,000, or $50,000. In view of these conditions complainant prays that the opinion be modified, by striking out the paragraph next to the last, and inserting the following or something equivalent thereto:

"Inasmuch as the course of the General Land Office in causing the Carpenter survey to be made, and in recognizing that survey as the boundary between the two states, was obviously the cause of the present litigation, it is recommended to that office that steps be taken to resurvey and remark the Darling and Preston-Major surveys as far as may be necessary fully to show the

correct boundary on the earth's surface, in accordance with this opinion."

Complainant submits herewith the form of a decree, which is believed to be sufficient to carry into effect the conclusion of the Court.

STATE OF NEW MEXICO

By Frank W. Clancy,

Its Counsel.

SUPREME COURT OF THE UNITED STATES

No. 12, Original. — October Term, 1924

The State of New Mexico, Complainant)

vs.)

The State of Colorado.)

Final Decree Proposed by Complainant

This cause having heretofore come on for hearing, and having been argued by Mr. Frank W. Clancy, special counsel, for complainant, and by Mr Oliver Dean, Assistant Attorney General of Colorado on behalf of defendant, and submitted to the court and the court having on January 26, 1925, announced its decision as appears from the opinion on file which directed the parties to submit the form of a decree to carry the decision of the court into effect, and the complainant having submitted this decree as one which will carry the conclusions of the court into effect

It is now ordered, adjudged, and decreed by the court that the bill of complaint in this cause be, and the same hereby is, dismissed, and that, under the cross bill of Colorado, the Darling-

and Major-Preston line be, and the same hereby is decreed to be the boundary between the two states, that line being identified and described in the record and in the said opinion of this court, and it is further ordered, adjudged, and decreed that the re-survey, and restoration of that portion of the Darling line between the 203rd mile corner, and the 8th astronomical monument of the Darling survey, made by William C. Perkins, United States Surveyor, under authority of the Commissioner of the General Land Office, in September, October and November, 1917, a plat whereof appears in the printed record in this cause immediately after printed page 792 is to be taken and considered as a part of the Darling line, hereby determined, with the Major-Preston line, to be the boundary between the two states, so as to complete the line between Darling's astronomical monuments, 6 and 8; and it is further ordered, adjudged and decreed by the court that the costs in this case, to be taxed by the clerk of the court, should be equally divided between the complainant and defendant and that the defendant should refund to the complainant any excess over half of said costs which may have been paid by the complainant, upon the certificate of the Clerk as to the amount of said costs and as to what may have been paid by the respective parties.

FILE COPY

IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1924.

No. 12, Original.

THE STATE OF NEW MEXICO, COMPLAINANT,

vs.

THE STATE OF COLORADO.

PROPOSED DECREE OF THE STATE OF COLORADO, DEFENDANT.

WILLIAM L. BOATRIGHT,
Attorney General of the State of Colorado.

IN THE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1924.

No. 12, Original.

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO.

PROPOSED DECREE BY THE STATE OF COLORADO.

This cause having heretofore been heard and submitted, and the court, after consideration, having announced its conclusions in an opinion delivered January 26, 1925, it is now *ordered*, *adjudged*, and *decreed*:

1. That the true boundary line between the States of New Mexico and Colorado is that portion of the line surveyed and marked by John J. Major, U. S. Surveyor and Astronomer, in the year 1874, which was in the year 1900 retraced and remarked by Levi S. Preston, U. S. Deputy Surveyor, from what is known as the Preston Monument on the Cimarron

Meridian, westwardly to the monument established in the year 1859 by Capt. J. N. Macomb as and for the intersection of the one hundred and third meridian of longitude west from Greenwich with the thirty-seventh parallel of north latitude; together with the line surveyed, established and marked in the year 1868 by Ehud N. Darling, U. S. Surveyor and Astronomer, westwardly from said Macomb Monument to the eleventh astronomical monument placed by said Darling on the one hundred and ninth meridian of longitude west from Greenwich, and at which point is located the common corner of the States of Utah, Arizona, New Mexico, and Colorado.

2. That said Major-Preston and Darling line be restored, resurveyed and remarked by two commissioners to be named by the court upon suggestion of counsel, and in case of failure of counsel to agree on such commissioners within sixty days from this date, such commissioners to be selected and appointed by the court. In either event the work of such commissioners shall be subject to the approval of the court.

3. That the commissioners shall restore the original boundary line between the two States, as fixed and marked by said Major-Preston and Darling surveys, by relocating and permanently remarking with suitable monuments the positions of the astronomical monuments and mile corners thereof. From the 203d mile corner to the eighth astronomical monument of said Darling survey, the locations of the mile corners and of the seventh astronomical monument of said Darling survey, as restored and marked in the year 1917 under the direction and with the approval of the Commissioner of the General Land Office by Wm. C. Perkins,

U. S. Surveyor, in his restoration and resurvey of this portion of the original boundary, shall be adopted and accepted. The commissioners will obliterate all evidences of corners and monuments set by Howard B. Carpenter, U. S. Surveyor, in the years 1902 and 1903, under the direction of the Commissioner of the General Land Office, between said Preston Monument and the southwest corner of Colorado. Said commissioners are authorized to adopt all ordinary and legitimate methods in the ascertainment of the true location of said original boundary line, including the taking of evidence under oath and calling for papers and documents, but in the event evidence is taken the parties shall be notified and permitted to be present and cross-examine the witnesses; and all evidence taken by the commissioners and all exceptions thereto and action thereon shall be preserved and certified and returned with their report. Said commissioners are also at liberty to refer to and consult the printed record in the cause so far as they may think proper to enable them to discharge their duties under this decree.

Before entering upon their work, the commissioners shall take an oath to perform their duties faithfully and impartially. They shall prosecute the work with all convenient dispatch, shall have authority to employ such assistants and incur such expenses as may be necessary, and upon completion of their labors, they shall make and file with the clerk of this court their full and complete report, and shall furnish a copy of such report to the Governor of each of said States. They shall include in their report a statement of the work done and of the time spent and the expenses incurred.

4. That the bill of complaint of the State of New Mexico be, and the same is, hereby dismissed.

5. That all the costs in this case, as the same shall be taxed by the clerk of this court, and the costs of executing this decree, including the compensation of the commissioners, shall be borne in equal parts by the State of New Mexico and the State of Colorado.

WILLIAM L. BOATRIGHT,
Attorney General of Colorado,
Counsel for Defendant.

FREE COPY

IN THE

Supreme Court of the United States.

October Term, 1924.

No. ~~12~~ 4 Original.

THE STATE OF NEW MEXICO, COMPLAINANT,

vs.

THE STATE OF COLORADO.

STIPULATION FOR APPOINTMENT OF COMMISSIONER.

IN THE

Supreme Court of the United States.

October Term, 1924.

No. 12, Original.

THE STATE OF NEW MEXICO, COMPLAINANT,

vs.

THE STATE OF COLORADO.

STIPULATION FOR APPOINTMENT OF COMMISSIONER.

Come now the parties above named and by their respective solicitors and counsel stipulate and agree that, if agreeable to this Honorable Court, the re-surveying and re-marking of the boundary line between said two States may be done and performed by and under the supervision of one Commissioner, and that Arthur D. Kidder, Associate Supervisor of Surveys, United States General Land Office, Washington, D. C., may be appointed by this Honorable Court as such Commissioner.

STATE OF NEW MEXICO,
COMPLAINANT,
BY FRANK W. CLANCY,
Its Counsel.

STATE OF COLORADO,
BY WILLIAM L. BOATRIGHT,
Its Attorney General.

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SUPREME COURT OF THE UNITED STATES.

No. 12, Original.—October Term, 1924.

The State of New Mexico, Complainant,
vs.
The State of Colorado.

[April 13, 1925.]

This cause having been heard and submitted, and the Court having considered the same and announced its conclusions in an opinion delivered January 26, 1925,

It is ordered, adjudged and decreed:

1. The bill of the State of New Mexico is dismissed, and the cross-bill of the State of Colorado is sustained.

2. The true and lawful boundary between the State of New Mexico and the State of Colorado consists of the following connecting lines: (a) The line extending westwardly from what is known as the Preston Monument, marking the intersection of the thirty-seventh parallel of north latitude with the Cimarron Meridian (the one-hundred and third) of longitude west from Greenwich, to what is known as the Macomb Monument, as the said line was surveyed and marked in the year 1900 by Levi S. Preston, deputy surveyor, while engaged, under the direction of the Surveyor General for New Mexico, in re-tracing and re-marking between said Cimarron Meridian and Macomb Monument the line that had been surveyed in the year 1874 by John J. Major, astronomer and surveyor, under the direction of the Commissioner of the General Land Office; and (b) The line extending westwardly from said Macomb Monument to the intersection of said parallel of latitude with the one-hundred and ninth meridian of west longitude, as the said line was surveyed and marked in the year 1868 by Ehud N. Darling, surveyor and astronomer, under the direction of the Commissioner of the General Land Office; *Provided that*, pursuant to the consent of the parties hereto, the line surveyed and marked in the year 1917 by Wm. C. Perkins, surveyor, under the direction of the Commissioner of the Land Office, as a restoration of the said Darling line between the 203rd mile corner and Astronomical

Monument No. 8 of the Darling survey, shall be taken and deemed to be the true location of the portion of the Darling line thus restored.

3. Arthur D. Kidder, cadastral engineer, is designated as a commissioner to run, locate and mark the boundary between the two States as determined by this decree. In running the same the said Preston and Darling lines shall be retraced and restored in accordance with the marks of the original surveys upon the ground and the approved field notes thereof on file in the General Land Office, copies of which are incorporated in the printed record in this cause, except that as to the portion of the said Darling line restored by said Perkins, the line marked by said Perkins shall be followed.

4. The boundary shall be marked by establishing permanent monuments thereon, suitably marked and at appropriate distances. All corners and monuments established by said Darling that were destroyed or obliterated by Howard B. Carpenter, surveyor, in accordance with the direction of the Commissioner of the General Land Office, in making a survey of the boundary in the years 1902 and 1903, shall be restored; and all new corners and monuments that were established by said Carpenter on his survey, shall be destroyed.

5. The commissioner shall include in his report a description of the monuments established by him and of the [redacted] and distances between them. He shall file with his [redacted] field notes of his survey and a map showing the boundary line as run and marked by him; also two copies of his report and map.

6. Before entering upon his work the commissioner shall take and subscribe an oath to perform his duties faithfully and impartially. He shall prosecute the work with diligence and dispatch, and shall have authority to employ such assistants as may be needed therein; and he shall include in his report a statement of the work done, the time employed and the expenses incurred.

7. The work of the commissioner shall be subject in all its parts to the approval of the Court. The copies of the commissioner's report and map shall be promptly transmitted by the clerk to the Governors of the two States; and exceptions or objections to the commissioner's report, if there be such, shall be presented to the Court, or, if it be not in session, filed with the clerk, within forty days after the report is filed.

8. If, for any reason, there occurs a vacancy in the commissionership when the Court is not in session, the same may be filled by the designation of a new commissioner by the Chief Justice.

9. All the costs of the cause, including the compensation and expenses of the commissioner, shall be borne in equal parts by the State of New Mexico and the State of Colorado.

[illegible]

SUPREME COURT OF THE UNITED STATES

No. 1. Original

THE STATE OF NEW MEXICO, COMPLAINANT

v.

THE STATE OF COLORADO, DEFENDANT

REPORT OF THE BOUNDARY COMMISSIONER

PART ONE OF THREE

FROM NORTHEASTERN CORNER OF NEW MEXICO
TO THE SANGRE DE CRISTO RANGE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1959

No. 1, Original

THE STATE OF NEW MEXICO, COMPLAINANT

vs.

THE STATE OF COLORADO, DEFENDANT

REPORT OF THE BOUNDARY COMMISSIONER
PART ONE OF THREE
FROM NORTHEASTERN CORNER OF NEW MEXICO TO THE SANGRE DE CRISTO RANGE

JOSEPH C. THOMA,
Boundary Commissioner.

WASHINGTON, D. C., February 15, 1960.

THE COURIER PRINTING CO., LITTLETON, N. H.

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SUPREME COURT OF THE UNITED STATES

October Term, 1959

No. 1, Original

THE STATE OF NEW MEXICO, Complainant

vs.

THE STATE OF COLORADO, Defendant

FIRST REPORT OF THE BOUNDARY COMMISSIONER

To the Chief Justice and the Associated Justices of the Supreme Court of the United States:

In further continuation of our work as commissioners designated in the Decree of April 13, 1925 (268 U. S., 108) in the above entitled case, the late Arthur D. Kidder and I have run, located, and marked upon the ground the boundary line between the States of Colorado and New Mexico in accordance with Section Two of the Decree and the principles announced in the Opinion delivered January 26, 1925 (267 U. S. 30).

All field work was done under the supervision of Arthur D. Kidder, Boundary Commissioner. (Mr. Kidder died suddenly at his home in Terre Haute, Indiana, in June, 1958.)

On July 2, 1958, The Supreme Court of the United States appointed Joseph C. Thoma, of Washington, D. C., Boundary Commissioner, to complete the report and field notes of the boundary survey. Mr. Thoma was assisted in his duties by Gordon E. Ainsworth and Associates of South Deerfield, Massachusetts, and Phoenix, Arizona.

The report of the survey will be given in three parts, viz:

PART ONE:
From the Northeastern corner of New Mexico westward to the Crest of the Sangre de Cristo Range

PART TWO:
From the Crest of the Sangre de Cristo Range westward to the Continental Divide

PART THREE:
From the Continental Divide westward to the corners of the four States, Arizona, Colorado, New Mexico and Utah.

This report, Part One, represents an assimilation of tentative reports of Mr. Kidder, completed under Mr. Thoma's direction. The report follows.

SPECIFIC REPORT OF BOUNDARY COMMISSIONER

PART ONE

Northeastern corner of New Mexico westward to Crest of Sangre de Cristo Range

In accordance with the Decree, the control of the boundary survey was to be certain monuments established and accepted, prior to this dispute as marking the boundary.

The remaining monuments of these accepted surveys were used as absolute control for the remarking of the boundary, and where the monumentation of the line was lost due to the passage of time and events of history, the line between existing monuments was retraced in the field, using the records of the original survey and principles of surveying, as promulgated by the Department of Interior, Bureau of Land Management, and utilizing the extensive cadastral engineering knowledge of Mr. Kidder, the boundary was reestablished where it had been obliterated.

During the first period of the survey, an experienced field party, headed by Hugh B. Crawford, employed regularly by the General Land Office, was detailed to assist in the boundary survey, under the supervision of Arthur D. Kidder, Boundary Commissioner.

After reconstructing the Macomb Monument, the field party proceeded eastward, retracing and reestablishing the boundary as surveyed and marked in 1900 by Levi S. Preston, under contract with the Commissioner of the General Land Office. They then went back to the Macomb Monument, and proceeding westward, retraced and reestablished the boundary as surveyed and marked by Ehud N. Darling in 1868. The highlights of the above mentioned surveys, as well as others who partook in making this history, are covered in a chapter of this report entitled, "Historical Lines and Monuments," as well as in the Opinion (267 U. S. 30) January 26, 1925, of the Supreme Court of the United States.

In latter portions of this report, the field note records of the retracing and reestablishing of monuments on the boundary are enclosed with a map depicting the boundary line as surveyed. The one hundred and twenty-four and one-half miles of the boundary survey notes covered by this report have been broken down into fifteen units, each unit approximately eight miles long. The map covering each of these units has been inserted so that one may read the field notes and follow along the boundary at the same time.

The field notes and maps which have been included as part of this

report have been prepared in the format, with adaptations as necessary, as prescribed by "The Manual of Surveying Instructions, 1947," as issued by the Department of Interior, Bureau of Land Management.

The following tabulations are compiled from the records of the surveys by Darling, Preston and Carpenter, and from the field notes included in this report, to collaborate and make valid the monuments that mark the line today.

The Preston Line

Markers, the Preston Line (recorded number assumed as 100%)		100%
Markers found and destroyed by Carpenter	0%	
Markers recovered	67%	
Markers obliterated or lost beyond identification	33%	
Markers reestablished by Arthur D. Kidder		100%

The Darling Line

Markers, the Darling Line (recorded number assumed as 100%)		100%
Markers found and destroyed by Carpenter (recorded)	31%	
Markers recovered	69%	
Markers obliterated or lost beyond identification	31%	
Markers reestablished by Arthur D. Kidder		100%

In addition to the remarking of the boundary as decreed by the Court, numerous "new monuments were constructed in places where they would be conspicuous, for the aid of property owners, civil engineers, land surveyors, local officials and the public, whoever may have need for finding the location."

Tabulated below from the survey records is the destruction of the Carpenter line, which was also decreed by the Court in this case.

The Carpenter Line

Markers, the Carpenter Line (recorded number assumed as 100%)	100%
Markers found and destroyed by Arthur D. Kidder	100%

When known at the time of the survey that a Carpenter Monument was tied into local surveys or served other functions besides marking the boundary, only the identity of the monument as a boundary marker was destroyed. The actual iron post was preserved or remonumented, to fulfill its other functions.

All Carpenter Monuments were tied to the reestablished Darling line prior to their destruction, and a full and accurate record of Darling's monuments and their accessories as found during the retracements, as well as the reestablishment and reconstruction of all new monuments and accessories, are preserved in the field notes enclosed with this report.

The monumentation of this portion of the boundary was accomplished

primarily by the construction of concrete monuments molded in mass at the station, in galvanized metal forms, in the shape of truncated cones of the following sizes:

8" upper diam., 16" lower diam., 36" high
16" upper diam., 24" lower diam., 36" high
8" upper diam., 11" lower diam., 18" high

Heavy bronze tablets were set in the top of these concrete markers as well as in rock outcrops and selected stone markers.

An illustration of the heavy bronze tablet used to identify monument and points on the boundary is shown below, this tablet being marked with identifying Mile Corner or portion thereof, in the field, and properly orientated on the monument.

Westward, from the northeastern corner of New Mexico, the boundary crosses the southern ridges and cliffs of the Mesa de Mayo; the drainage is to the south, to the Cimarron River in New Mexico. The boundary reaches an elevation of 7000 ft. above sea level just south of Branson, Colo., about fifty miles along the boundary. From here for seventy miles much of the boundary follows close to the high divide between the Las Animas (or Purguitoire) River in Colorado, flowing to the Arkansas River, and the drainage southward to the head of the Cimarron River and a little farther west to the Canadian River in New Mexico. The Spanish Peaks in Colorado are in close view for many miles along this stretch of the boundary. The ascent continues to the crest of the Snowy Range at 10,800 ft. above sea level; from that divide the drainage is west to the Rio Grande.

Timber and Undergrowth

The boundary runs through timber and undergrowth for most of its length. The exceptions are across the San Luis valley and the line west from the last high point of the Mesa Verde and from there to the corner of the four states. These intervals are bare excepting for grass, and the grass depends entirely upon the seasonal moisture and the extent or absence of grazing. If moisture comes with the seasonal changes, and if it is not over-grazed, the grass may be very good, otherwise the soil may be bare.

Cottonwood timber is prevalent in the lower stream valleys. Cedar and pinon (pine) occur on the mountain slopes and mesas up to the 7000 ft. elevation, more or less scattering from the east until beginning the mountain ascents south from Branson, Colo. On the western slopes and high mesa tops, however, it is very large and growing densely, mile after mile, greatly retarding the progress of the survey. The Colorado yellow pine, or Ponderosa pine, occurs on the mountain slopes nearly everywhere after reaching the 7000 ft. elevation. Higher up the aspen occurs in dense stands, then the spruce, and last the fir to timberline, which was reached at 11,600 ft. on Boundary Peak.

The undergrowth consists of many mixed species through the eastern part of the boundary, retarding the survey in places, but not so bad in terms of progress. This condition changes completely on the summit of the Chama Range, the west slope of which abounds in a very thick growth of young oak, large and dense—mainly the cause, it is believed, for the discrepancy in the alignment of the boundary beginning at that summit and running to the crest of the continental divide. There the alignment straightens out, but the 1868 marking was discontinued entirely before reaching Eweli Canon on the west slope.

The Land Grants

This portion of the boundary crosses two large Spanish land grants. The

Maxwell Grant was entered at a point about eight miles east of Raton Pass, that being on the divide between Trinidad, Colo., and Raton, New Mexico. This grant continues to the crest of the Snowy Range, or Sangre de Cristo Range as it was named by the Spanish. There the boundary enters the Sangre de Cristo Grant which extends to the Rio Grande.

Headquarters and Supplies

Trinidad, Colo., was used as the headquarters and supply point for the boundary survey from the northeastern corner of New Mexico westward to the Rio Grande. Saddle horses and pack horses, and the needed packers, were furnished by the large Wm. & H. J. Heck ranch, high in the mountains of Colfax County, New Mexico, for packing in the supplies, and for moving the party camp along the line the entire distance from the northeastern corner of New Mexico westward to the San Juan River.

Personnel

During the first period of the survey an experienced field party, headed by Hugh B. Crawford, employed regularly by the General Land Office, was detailed to assist in the boundary survey. After the suspension of field operations, and upon resuming the work in 1947, the assistants were recruited from Bayfield, Durango, and Kline, in Colorado, and from Farmington, La Plata, and Shiprock in New Mexico, the latter including three Navajo assistants. The technically trained and experienced transitmen and principal assistants were drawn from elsewhere. The latter includes particularly Joseph C. Thoma of Washington, D. C., and Harvey A. Brashiers of St. Paul, Arkansas, both of whom were employed for many years on the General Land Office surveys, Mr. Thoma especially having had a very wide and extended experience. (He is the recipient of the award for meritorious service conferred by the Department of the Interior subsequent to his retirement from the General Land Office.) Mr. Brashiers had fewer years of experience, but outstanding qualifications.

Mr. Crawford is familiar with all phases of the boundary survey from the northeastern corner of New Mexico westward to the San Juan River. Mr. Thoma from there to the corner of the four states. Mr. Brashier was on the survey from the San Juan River westward to the Pine River, and again for that part of the boundary westward from the westernmost high cliff of the Mesa Verde to the corner of the four states.

Through his astronomical observations for precise location in latitude and in his early retracements of portions of the boundary for the identification of the marks of the 1868 survey, dating back to 1902, Mr. Kidder has lived with the questions, disputes, and location of the line between Colorado and New Mexico. Among those who were drawn upon for testimony during the

trial of the suit, he was one of the few surveyors still engaged in large-scale land surveying work. The early work, together with that as the commissioner on the boundary survey, has given an acquaintance and intimate familiarity that is complete from one end of the boundary to the other. It is with utmost satisfaction that the boundary survey has been carried through to completion in the knowledge that every detail has been accomplished in full accord with the decree of the Supreme Court.

In the following chapter, the highlights of earlier surveys, with all the interesting ramifications, have been enlisted to acquaint readers with the basic events which have resulted in the need for this report.

Immediately following the above described chapter are descriptions of the two monuments specifically mentioned in the decree as controlling: "The Macomb Monument" and "The Preston Monument," as they were found and reconstructed. These two monuments in field note format are also included in their proper positions in the field notes.

The foregoing and following portions of this report are respectfully submitted to the Chief Justice and the Associate Justices of the Supreme Court of the United States for their approval.

Your humble and obedient servant,

JOSEPH C. THOMA
Boundary Commissioner

COLORADO—NEW MEXICO BOUNDARY

HISTORICAL LINES AND MONUMENTS

COLORADO – NEW MEXICO BOUNDARY

Historical Lines and Monuments

The Supreme Court of the United States in its Decree of April 13, 1925 (268 U. S. 108) stipulated certain lines and monuments that are controlling for the location of the boundary, which were to be identified and employed for the retracement and reestablishment of the boundary.

These monuments are:

1. The Preston Monument, 1900, marking the northeastern corner of New Mexico.
2. The Macomb Monument, west of which Darling established the Colorado–New Mexico Boundary in 1868 and east of which Major established the southern Colorado boundary in 1874.

The field notes of the early surveys which are referred to were filed in the General Land Office, Department of the Interior, and bear official approval. Transcripts were supplied with the record that was submitted to the Court.

The remaining original monuments and markers, as of the date of the retracement, are described just as identified, followed by a statement of the detail with respect to the construction of the new monument and reference marks in the field notes. Many additional new monuments were constructed in places where they would be conspicuous for the aid of property owners, civil engineers, land surveyors, local officials, and the public, whoever may have need for finding the location.

The earliest marker on the 37th parallel (Field notes, See Darling Line 2nd Mile) was established in 1857, by Colonel Joseph E. Johnston, U. S. Army, then intended to be the terminal point of his survey of the southern boundary of the Territory of Kansas. That line was surveyed by measurements along the 37th parallel, starting from the western boundary of the State of Missouri. Before leaving the terminal point, astronomical observations were made by the method of moon culminations in order to verify the accuracy of the longitude. Later, in Washington, after a comparison was made with the corresponding moon declinations in terms of Greenwich time it was ascertained that the Johnston Monument had been placed a considerable distance too far west. The measurement in 1928 ascertained that the Johnston marker is 4.36 miles west, counting from the established northeast corner of New Mexico, the Preston Monument.

Captain J. N. Macomb, Corps of Topographical Engineers, was instructed to correct the discrepancy in the longitude of the Johnston Monument, which he did in November, 1859, as stated in the report of A. A

Humphreys, Brigadier General and Chief of Engineers, Engineer Department, by letter dated April 22, 1867, addressed to the Commissioner of the General Land Office.

In 1868, Ehud N. Darling, U. S. Surveyor and Astronomer, surveyed the boundary westward from the Macomb Monument, marking the line between the Territories of Colorado and New Mexico for a distance of 331 and ¾ miles to the 109th Meridian, according to the Darling field notes.

In 1874, John J. Major, U. S. Surveyor and Astronomer, surveyed the easterly portion of the southern boundary of the Territory of Colorado, running and marking the line of the 37th parallel westerly from the 102nd Meridian and terminating at the Macomb Monument, a distance of 55 and ¼ miles.

The subdivisional surveys in southeastern Colorado were closed on the Darling and Major Lines.

The 103rd Meridian was established in 1881, under the direction of the Commissioner of the General Land Office by Richard O Chaney and William W. Smith, U. S. Surveyors and Astronomers.

The true position in longitude was determined by astronomical observations and telegraphic exchange of time signals at Las Animas, Colorado, from which place the meridian was carried southward. After reaching their 37th parallel, Chaney and Smith established monuments at every ½ mile interval to the parallel of 36° -30′ North Latitude. This line is known as the "Cimarron Meridian," one of the principal meridians of the United States rectangular system of public land surveys, and it has come to be the boundary between the State of Oklahoma and New Mexico. Southward from the 37th parallel of Chaney and Smith, this line served as the survey for the establishment and marking of the townships surveys in Beaver County, Oklahoma, later divided into the present Beaver County, Texas, and Cimarron County, Oklahoma.

In 1900, Levi S. Preston, U. S. Deputy Surveyor, employed the Macomb Monument in retracing the Major line eastward to his 103rd parallel, a distance of 2 and ½ miles, where he established a monument to mark the northeastern corner of New Mexico. In 1900, the New Mexico township surveys were extended to and closed upon Preston's retracement of the Major line as the northern limits and Chaney and Smith's 103rd Meridian as the eastern limit. This survey did not encroach upon, disturb or affect the township surveys either in Colorado or Oklahoma.

RECONSTRUCTION

Macomb Monument

As identified in October, 1928, the Macomb Monument consisted of a mound of rough native stone, having a base diameter of 10 feet, and a height of 4 feet. Within the mound there was a marked 14x12x4 inches sandstone, one face of which carried the letters WL and the opposite face NL. The marked stone showed evidence of having been broken from a larger stone (Carpenter 333rd Mile); the companion piece, carrying other marks, could not be found.

Preserving the center point of the mound, Arthur D. Kidder removed the marked stone and excavated at the base 12 inches to bed rock, and then constructed a concrete monument, in a circular metal form, 16 inches upper diameter, 24 inches lower diameter, 36 inches high, with a bronze tablet seated in the top; marked Supreme Court of the United States, Colorado on the northern half, New Mexico on the southern half, and Mile Corner No. 0. 1868-1925; replaced the marked stone in the mound, and rebuilt the mound to a base diameter of 12 feet, 2 feet high, to the top of and surrounding the concrete monument.

The Macomb Monument is located on the line between Baca County, Colorado, and Union County, New Mexico, on the top and near the east side of a narrow mesa, one of the extreme southeastern points of the Mesa de Maya. This point is situated between the two principal forks of Blacksmith Canon; the junction of the forks bears S. 55° E. about an even mile's distance. The mesa here stands 350 feet above the valley of the eastern fork of the canon, and the elevation of the Macomb Monument is 4887 feet above sea level.

The geographic position of the Macomb Monument (geodetic, as calculated in 1928) is:

North Latitude	37° 00′ 00.46″
West Longitude	103° 02′ 50.12″

RECONSTRUCTION

Preston Monument

As identified, the Preston Monument, marking the northeastern corner of New Mexico, consisted of a 60x12x10 inches sandstone, firmly set, marked COLO on the north face, CM on the east face, NE COR NM on the south face and CC 1900 on the west face, with evidence of pits north, south and west, and a mound of earth and stone west of the monument.

Preserving the center point, Arthur D. Kidder buried the Preston stone and set a 48x10x10 inches granite stone, with the lower 16 inches supported in a 36x36x24 inches concrete base, the base set 20 inches in the ground. The faces of the granite stone were neatly lettered COLORADO on the northeast and northwest, NEW MEXICO on the southwest, and OKLAHOMA on the southeast.

The Preston Monument is located in a wide valley which above here, in Colorado, merges into the basin of Furnish Canon Creek; the latter drains southeasterly into Carrizo Creek, which flows from Colorado into Oklahoma. The valley of Blacksmith Canon Creek is situated on the New Mexico side of the boundary, the valley merging with the valley of Carrizo Creek, which flows into the Cimarron River in Oklahoma. The elevation of the Preston Monument is 4444 feet above sea level.

The geographic position of the Preston Monument (geodetic, as calculated in 1922) is:

North Latitude	37° 00′ 00.645″
West Longitude	103° 00′ 00.777″

Before leaving this location, Arthur D. Kidder made connections to other established points, as follows:

Beginning at the Preston northeastern corner of New Mexico, as reconstructed, a monument established by Chaney and Smith to mark the point of intersection of the 103rd meridian with their parallel of 37° 00′, bears N. 0° 04′ W., 14.07 chains distance; a gray sandstone, 16x24x52 inches above ground, marked Colorado on north, 37° N L on east, 103° W L on west, and 1881 on south face.

Beginning again at the Preston monument, the corner of sections 7 and 18, on the Cimarron Meridian, on the west boundary of Township 6 North, Range 1 East, Cimarron Meridian, Oklahoma, also established by Chaney and Smith, bears S. 0° 02′ W., 28.63 chains distance; a zinc cone, 6 inches diameter at top, 8 inches diameter at ground, standing 12 inches above ground, firmly set, marked C M T 6 N R 1 E on east, S 7 on northeast, and S 18 on southeast face.

Beginning again at the Preston monument, the Carpenter 335th Mile Corner bears S. 83° 30′ E., 9.20 chains distance; an iron post, firmly set and

witnessed by pits; removed this monument.

Beginning again at the Preston monument, the closing corner of sections 13 and 14, Township 35 South, Range 50 West, Sixth Principal Meridian, Colorado, bears S. 84° 12′ E., 31.06 chains distance; an iron post, 2 inches diameter, 12 inches above ground, firmly set, marked and witnessed as described in the official record.

Beginning again at the Preston monument, the closing corner of sections 7 and 8, Township 6 North, Range 1 East, Cimarron Meridian, Oklahoma, bears S. 84° 12′ E., 79.96 chains distance; a sandstone, 15x1x6 inches above ground, firmly set, marked CC on south, with 5 grooves on east, and 1 groove on west face; evidence of pits east, west and south of corner.

Beginning at the Oklahoma closing corner, last described above, the Major 50.5 Mile Corner bears N. 89° 21′ E., 124.72 chains distance; a mound of stone, 3 foot base, 1½ foot high; the marked stone has been removed.

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 0

to

MILE CORNER No. 4

This portion of the boundary survey was executed with a Buff and Buff engineer's transit equipped with an improved Smith Solar attachment, the horizontal circle has two double opposite verniers reading to single minutes; the vertical circle has one double vernier reading to single minutes. The instrument was in good condition and was placed in satisfactory adjustment prior to the beginning of the survey, and was tested and found free from appreciable error. Frequent tests were made throughout the survey.

The tangent method of surveying a parallel of latitude was selected; the controlling meridian was established by observations on Polaris; the bearing of the tangent was deflected from the meridian by repetition of angles and carried forward by transit line, taking the mean of direct and reversed sights at each instrument station. Frequent observations on Polaris and direct observations on the sun for azimuth were made throughout the survey to test the azimuth of the tangent.

Measurements were made with a narrow steel tape, 5 chains in length, graduated every link for the first 100 links, and thereafter at intervals of ten links. The tape was tested by comparison with a 1 chain standard steel tape and found correct. Measurements were made on the slope and the vertical angles determined by a clinometer in good adjustment; the field notes show the horizontal equivalents.

THE MACOMB MONUMENT

As identified in October, 1928,

The Macomb Monument (Opinion, p. 2, par. 1; Decree, sec. 2), a broken sandstone, 14x12x4 ins., firmly set within a mound of stone, 10 ft. base diam., 4 ft. high, mkd. W L and N L on opposite faces. The companion piece (Carpenter 333rd Mi.) which originally carried other marks, could not be found.

In place of stone

Construct a concrete monument, in a circular metal form, 16 ins. upper diam., 24 ins. lower diam., 36 ins. high, set 12 ins. in the ground on bed rock, with heavy bronze tablet seated in the top marked The Supreme Court of the United States, Colorado on the northern half, New Mexico on the southern half, Mile Corner 1868-1925, and build a mound of stone around the monument having 12 ft. base diam., 2 ft. high, replacing the original stone within the mound. The elevation of the monument is 4887 ft.

The geographic position (geodetic, as calculated in 1928) is:

North Latitude 37° 00′ 00.46″
West Longitude 103° 02′ 50.12″

THE PRESTON LINE, 1ST MILE

RETRACEMENT

Chains

Beginning at the Macomb monument, as reconstructed.

East, on a retracement of the Preston boundary, on a transit line describing a tangent.

21.00 Altitude observation on the sun for azimuth, Oct. 27, 1928.

80.00 N. 0.8 lks. to the parallel; the 1st Mi. Cor. has become obliterated.

160.62 N. 3.0 lks. to the parallel, thence the 2nd Mi. Cor. bears N. 23.9 lks. dist.

200.87 N. 4.7 lks. to the parallel; thence the Preston northeastern corner of New Mexico (Opinion, p. 2, par. 4; Decree, sec. 2) bears N. 29.4 lks. dist.; on this determination the true line bears N. 89° 55' E.

REESTABLISHMENT

Thence from the Macomb monument, as reconstructed, N. 89° 55' E., on a reestablishment of the 1st mile.

Descend gradually on mesa, through scattering timber and undergrowth.

1.00 Top of rim rock, bears N. 10° E. and S. 10° W.; abrupt descent of 250 ft.

11.00 Bottom of canon, course NE.; ascend 80 ft.

21.00 Spur from mesa, slopes N.; descend 150 ft.

30.50 Leave scattering timber and undergrowth; enter valley.

38.10 Arroyo, North Fork of Blacksmith Canon, course S. 30° E., elevation 4540 ft.; ascend gradually.

47.00 Leave valley; ascend 270 ft. over broken W. slope.

48.67 The closing cor. of Tps. 32 N., Rs. 36 and 37 E., NM Prin. Mer., New Mexico, bears South, 0.6 lks. dist., a sandstone, 12x10x16 ins. above ground, firmly set, marked and witnessed as described in the official record.

56.00 Rim rock, bears N. 16° W. and S. 23° E.; enter scattering timber.

56.32 The Carpenter 333.08 Mi. Cor. bears South, 96 lks. dist.; an iron post, firmly set in a mound of stone; I remove this monument.

Chains

THE PRESTON LINE, 1ST MILE

56.50 A narrow ridge, bears N. and SE.

58.50 Top of rim rock, bears NE. and SW. turning to SE.; abrupt desce of 215 ft.; leave scattering timber.

65.00 Base of abrupt descent; thence along base of steep N. slope.

70.61 Angle point No. 4 of Tract No. 48, of T. 35 S., R. 50 W., Sixth Pr Mer., Colorado, bears North, 2 lks. dist., an iron post, 1 in. diar 14 ins. above ground, firmly set, marked as described in t official record.

71.44 The closing cor. of secs. 15 and 16, T. 35 S., R. 50 W., Sixth Pr Mer., Colorado, bears North, 1 lk. dist., an iron post, 2 ins. dia 14 ins. above ground, firmly set, marked and witnessed as scribed in the official record.

80.31 The proportional point; unable to identify Preston's 1st Mi. Cor Construct a concrete monument, in a form 8x14x36 ins., set 24 i in the ground, with tablet seated in the top marked Mile Cor No. 1, 1900-1925; and build a mound of stone around the mo ment.

Land, mountainous.

Soil, sandy and stony; 3rd and 4th rate.

Timber, scattering cedar; undergrowth, scattering oak and ser brush.

THE PRESTON LINE, 2ND MILE

REESTABLISHMENT

N. 89° 55' E., on a reestablishment of the 2nd mile.

Along base of N. slope, and south side of valley.

48.76 The closing cor. of secs. 19 and 20, T. 32 N., R. 37 E., NM P Mer., New Mexico, bears South, 3.5 lks. dist., a sandstone, 8x ins. above ground, firmly set, mkd. CC on S. face; the s appears to have been broken; evidence of pits E., W. and S., small mound of earth and stone S. of cor.

49.69 The Carpenter 334th Mi. Cor. bears South, 1.01 chs. dist.; an post, firmly set in a mound of stone; I remove this monumen

60.00 The mesa on the south bears SE.; enter valley, which widens.

Chains

THE PRESTON LINE, 2ND MILE

71.32 The closing cor. of secs. 14 and 15, T. 35 S., R. 50 W., Sixth Prin. Mer., Colorado, bears South, 1 lk. dist., an iron post, 2 ins. diam., 10 ins. above ground, firmly set, marked and witnessed as described in the official record.

80.31 Preston's 2nd Mi. Cor.: a sandstone, 18x9x6 ins., firmly set, mkd. C on N., NM on S., and 2 M on W. face; evidence of pits E. and W. of cor.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 2, 1900-1925.

Land, 60 chs. broken, 20 chs. valley.

Soil, sandy clay and stony; 2nd and 3rd rate.

No timber.

THE PRESTON LINE, 3RD MILE

THE NORTHEASTERN CORNER OF NEW MEXICO

REESTABLISHMENT.

N. 89° 55' E., on a reestablishment of the 3rd mile.

Descend gradually in valley.

36.40 Wagon road, not graded at this point, bears N. to Furnish Canon, SW. to Blacksmith Canon, and SE. to Carrizo Creek, Cimarron River, and Kenton, Oklahoma, 9 mi. dist.

40.25 Preston's northeastern corner of New Mexico (Opinion, p. 2, par. 4; Decree, sec. 2), a sandstone, 60x12x10 ins., firmly set, mkd. ~~COLO on N., CM on E., NE Cor NM~~ on S., and CC 1900 on W. face; evidence of pits N., S., and W., and mound of earth and stone W. of monument.

In place of stone

Set a granite stone, 48x10x10 ins., set 16 ins. in concrete base 36x36x24 ins., 20 ins. in the ground, mkd. COLORADO on NE. and NW., NEW MEXICO on SW., and OKLAHOMA on SE. face;

from which

Chaney and Smith's monument, marking their intersection of 103rd meridian and 37th parallel, bears N. 0° 04' W., 14.07 chs.

Chains

THE PRESTON LINE, 3RD MILE

dist.: a grey sandstone, 16x24x52 ins. above ground, mkd. COLORADO on N., 37° NL on E., and 103° WL on S., 188! on W. face.

Cor. of secs. 7 and 18, T. 6 N., R. 1 E., Cim. Mer., Oklahoma, bears S. 0° 02′ W., 28.63 chs. dist.; a truncated zinc cone, 6 ins. top diam., 8 ins. at ground, 12 ins. above ground, firmly set, mkd. C M T 6 N R I E on E., S 7 on NE., S 18 on SE. face.

The Carpenter 3. 5th Mi. Cor. bears S. 83° 30′ E., 9.20 chs. dist.; an iron pipe, firmly set and witnessed by pits; I remove this monument.

The closing cor. of secs. 13 and 14, T. 35 S., R. 50 W., Sixth Prin. Mer., Colorado, bears S. 84° 12′ E., 31.06 chs. dist.; an iron post, 2 ins. diam., 12 ins. above ground, firmly set, marked and witnessed as described in the official record.

The closing cor. of secs. 7 and 8, T. 6 N., R. 1 E., Cim. Mer., Oklahoma, bears S. 84° 12′ E., 79.96 chs. dist.; a sandstone, 15x1x6 ins. above ground, firmly set, mkd. CC on S., with 5 grooves on E., and 1 groove on W. face.

From the above stone

The Major 50.5 Mi. Cor. bears N. 89° 21′ E., 124.72 chs. dist.; a mound of stone, 3 ft. base, 1½ ft. high; the marked stone has been removed.

The elevation at the Preston monument is 4444 ft. above sea level.

The geographic position (geodetic, 1922) is:

North Latitude 37° 00′ 00.645″
West Longitude 103° 00′ 06.777″

Land, valley.

Soil, sandy clay, 3rd rate.

No timber.

THE DARLING LINE, 1ST MILE

RETRACEMENT

Beginning at the Darling 3rd Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 2nd Mi. Cor. has become obliterated;

THE DARLING LINE, 1ST MILE

Chains

altitude observation on the sun for azimuth, Oct. 25, 1928.

160.00 N. 3.0 lks. to the parallel; the 1st Mi. Cor. has become obliterated.

238.32 N. 6.8 lks. to the parallel; thence the Macomb monument, as reconstructed, bears South, 93.5 lks. dist.; on this determination the true line bears N. 89° 47' W.

THE DARLING LINE, 1ST MILE

REESTABLISHMENT

Thence from the Macomb monument N. 89° 47' W., on a reestablishment of the Darling 1st mile.

Ascend gradually on mesa.

8.61 The closing cor. of secs. 16 and 17, T. 35 S., R. 50 W., Sixth Prin. Mer., Colorado, bears North, 5 lks. dist.; an iron post, 2 ins. diam., firmly set in a mound of stone, marked and witnessed as described in the official record.

9.60 Angle point No. 3, Tract No. 48, T. 35 S., R. 50 W., Sixth Prin. Mer., Colorado, bears North, 6 lks. dist.; an iron post, 1 in. diam., 14 ins. above ground, firmly set, marked as described in the official record.

15.50 Begin gradual descent.

19.50 Thence along the top and just under the edge of rim rock, bears N. 60° E. and W., breaking abruptly to the NE.

28.00 Leave rim rock, bears E. and N. 20° W.; ascend gradually.

29.73 The Carpenter 332nd Mi. Cor. bears South, 1.06 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument.

31.44 The closing cor. of secs. 23 and 24, T. 32 N., R. 36 E., NM Prin. Mer., New Mexico, bears North, 23 lks. dist.; a sandstone, 24x20x6 ins. above ground, firmly set, marked and witnessed as described in the official record.

57.00 On mesa, elevation 4965 ft.; descend gradually.

62.00 Begin abrupt descent of 260 ft. into canon; enter scattering scrub cedar timber, oak and service brush.

THE DARLING LINE, 1ST MILE

Chains

71.25 Bottom of canon, course S. 17 E.; ascend 210 ft. to corner

76.50 Top of steep ascent, bears N. 15 W. and S. 15 E.; continue gradual ascent.

79.44 The proportional point; 1st Mi. Cor. destroyed (Carpenter 327th Mi.).

Construct a concrete monument, in a form 8x14x16 ins., 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 1, 1868-1925, and build a mound of stone around the monument.

Land, mountainous.

Soil, sandy clay and stony; 2nd, 3rd and 4th rate.

Timber, scattering cedar; undergrowth, scattering oak and service brush.

THE DARLING LINE, 2ND MILE

REESTABLISHMENT

N. 89° 47' W., on a reestablishment of the 2nd mile.

Ascend 20 ft. over SE. slope, through scattering scrub cedar timber, oak and service brush.

1.60 Thence continue ascent over gradual SE. slope, near edge of mesa.

9.36 The closing cor. of secs. 17 and 18, T. 35 S., R. 50 W., Sixth Prin. Mer., Colorado, bears North, 25 lks. dist.; an iron post, 2 ins. diam., firmly set in ground and mound of stone, marked and witnessed as described in the official record.

16.30 On edge of mesa; descend gradually.

20.70 Gulch, course S. 20 E. turning to S. 45 E.; ascend 110 ft.

30.03 The Carpenter 331st Mi. Cor. bears South, 1.42 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument.

41.40 Top of ascent on mesa, elevation 5030 ft.; descend gradually.

46.40 Begin steep descent of 150 ft. into canon.

51.70 Bottom of box canon, course S. turning to S. 30 E.; abrupt ascent of 210 ft.

58.60 Top of abrupt ascent; ascend gradually.

The Darling Line, 2nd Mile

Chains

67.00 On point of mesa extending S. 20 E., elevation 5045 ft.; descend gradually.

68.58 The Johnston monument (see "Historical Lines and Monuments") bears North, 28 lks. dist.; a sandstone, 18x10x4 ins., lying on the ground at the center of a circular trench, 24 ft. in diam., mkd. 103 L., 37 L. and 1874 NM Major, on three faces.

76.00 Begin steeper descent into gulch.

79.44 The proportional point; 2nd Mi. Cor. destroyed (Carpenter 327th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 16 ins. in the ground on bed rock, with tablet seated in the top marked Mile Corner No. 2, 1868-1925, and build a mound of stone around the monument.

Land, mountainous.

Soil, sandy clay and stony; 2nd, 3rd and 4th rate.

Timber, scattering scrub cedar; undergrowth, scattering oak and service brush.

The Darling Line, 3rd Mile

REESTABLISHMENT

N. 89 47' W., on a reestablishment of the 3rd mile.

Descend 140 ft. into gulch, through scattering oak and service brush.

0.00 Gulch, course S. 20 W.; steep ascent of 100 ft.

11.96 The southwest corner of Baca County and southeast corner of Las Animas County, Colorado.

Construct a concrete monument, in a form 8x14x36 ins., set in a concrete base, on a sandstone outcrop, with tablet seated in the top marked Mile Corner No. 2 + 11.96 Chs., 1868-1925, and build a large mound of stone around the monument.

The closing cor. of Tps. 35 S., Rs. 50 and 51 W., Sixth Prin. Mer., Colorado, bears North, 11 lks. dist.; an iron post, 3 ins. diam., firmly set in a mound of stone, marked and witnessed as described in the official record.

18.50 On point of mesa; descend 210 ft. into canon.

Chains

THE DARLING LINE, 3RD MILE

22.79 The Carpenter 330.1 Mi. Cor. bears South, 1.76 chs. dist.; an ir post, firmly set in a mound of stone; I remove this monument a obliterate the marks on the bearing tree.

28.50 Canon, course S. turning to S. 45° E.; ascend 190 ft. to point mesa.

40.00 Point of mesa; thence over steep, broken S. slope, on N. wall fork of Blacksmith Canon.

73.20 Canon, 100 ft. deep, course S. 75° E.; ascend to corner.

79.44 Darling's 3rd Mi. Cor.; a sandstone, 10x10x3 ins., mkd. 3 M. posited under a small mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set in concrete base on sandstone ledge, with tablet seated in the marked Mile Corner No. 3, 1868-1925, and build a large mou of stone around the monument.

Land, mountainous.

Soil, stony; 4th rate.

Timber, a few scattering scrub cedar; undergrowth, scattering and service brush.

THE DARLING LINE, 4TH MILE

RETRACEMENT

Beginning at the 4th Mi. Cor., as identified and hereinafter scribed,

East, on a retracement of the Darling boundary, on a transit describing a tangent.

79.83 N. 0.8 lks. to the parallel; thence the 3rd Mi. Cor. bears N. 18.5 dist.; on this determination the true line bears S. 89° 52′ W.

REESTABLISHMENT

Thence S. 89° 52′ W., on a reestablishment of the 4th mile.

Descend gradually near head of canon, through oak brush.

3.00 Ascend 130 ft. over brushy NE. slope.

Chains THE DARLING LINE, 4TH MILE

13.00 Top of rim, near head of canon, bears N. 20° W. and S. 60° E.; leave brush; thence cross nearly level mesa.

33.04 The Carpenter 329th Mi. Cor. bears South, 1.11 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.

35.50 Head of small canon, course S. 20° W.; oak brush in canon.

48.90 Head of canon, course S.; one fork of Blacksmith Canon.

79.83 Darling's 4th Mi. Cor.; a sandstone, 9x8x3 ins., mkd. 4 M, deposited 16 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 4, 1868-1925.

Land, nearly level mesa, except canons.

Soil, sandy and stony; 3rd rate.

No timber, except one cedar tree at the Carpenter 329th Mi. Cor.; undergrowth, oak brush in canons.

C O L O R A D O

LAS ANIMAS COUNTY

BACA COUNTY

T. 35 S., R. 51 W.

T. 35 S., R. 50 W.

Southeastern Plateau of the Mesa de Maya

North Fork

DARLING SURVEY — PRESTON SURVEY

Blacksmith Canon

4	3	2	1	0	1
S 89° 52' W 79.83	N 89° 47' W 79.44	N 89° 47' W 79.44	N 89° 47' W 79.44	N 89° 55' E 80.31	N 89° 55' E 80.31

+11.96

MACOMB MON.

T. 32 N., R. 36 E.

T. 32 N., R. 37 E.

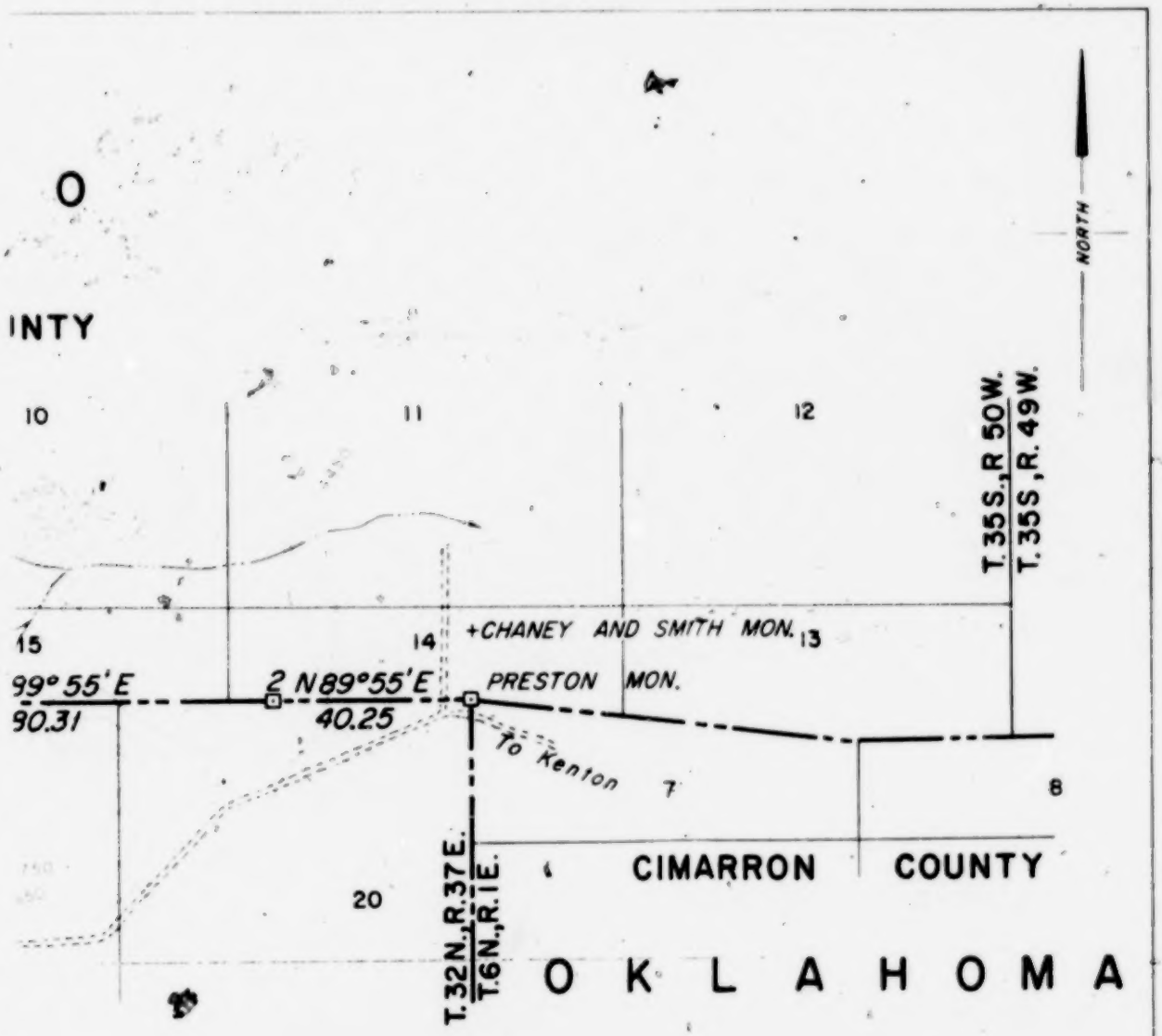
UNION COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 5

to

MILE CORNER No. 14

THE DARLING LINE, 5TH MILE

Chains

RETRACEMENT

Beginning at the 5th Mi. Cor., as identified and hereinafter described.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

78.29 Altitude observation on the sun for azimuth, Oct. 20, 1928.

80.33 N. 0 8 lks. to the parallel; thence the 4th Mi. Cor. bears N. 42.8 lks. dist.; on this determination the true line bears S. 89° 42' W.

REESTABLISHMENT

Thence S. 89° 42' W., on a reestablishment of the 5th mile.

Across nearly level mesa.

32.51 U.S.C. and G. S. reference station, bears S. 5.355 chs. dist.

33.28 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 4 + 33.28 Chs., 1868-1925;

from which

The Carpenter 328th Mi. Cor. bears South, 6 lks. dist.; an iron post, firmly set in ground and small mound of stone.

In place of post

Construct a concrete monument, 8x8x36 ins., set 24 ins. in the ground, with triangle templet seated in the top, and build a mound of stone around the monument; geographic position of this point by U. S. Coast and Geodetic Survey, 1922:

North Latitude 37° 00' 00.81"
West Longitude 103° 07' 35.90"

From the latter monument

A U. S. Coast and Geodetic Survey station, mkd. 328 ECC 1922 bears S. 0° 03' W., 5.05 chs. dist.

These two monuments stand near a fence corner; from which fence bears S. and E.

80.33 Darling's 5th Mi. Cor.; a basalt stone, 16x9x4 ins., lying on ground, mkd. C., NM, 5 M and 1868 on opposite faces; sandstone, 7x4x3 ins., mkd. M V, 12 ins. below the surface; sandstone, 5x4x3 ins., mkd. X, 12 ins. below the surface; depressions, 12 lks. dist., E. and W.

The Darling Line, 5th Mile

In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 5, 1868-1925.
Corner stands at about the highest point on the mesa; elevation 5163 ft.
Land, nearly level mesa near head of Blacksmith Canon and between Cimarron and Furnish Canons.
Soil, sandy loam, 2nd rate.
No timber.

The Darling Line, 6th Mile

RETRACEMENT

Beginning at the 7th Mi. Cor., as identified and hereinafter described.
East, on a retracement of the Darling boundary, on a transit line describing a tangent.
63.00 N. 0.8 lks. to the parallel; the 6th Mi. Cor. has become obliterated.
160.20 N. 3.0 lks. to the parallel; thence the 5th Mi. Cor. bears N. 61.2 lks. dist.; on this determination the true line bears S. 89° 47' W.

REESTABLISHMENT

Thence S. 89° 47' W., on a reestablishment of the 6th mile.
Across nearly level mesa.
The Carpenter 327th Mi. Cor. bears North, 1.07 chs. dist.; an iron post, firmly set; I remove this monument.
80.10 The proportional point; 6th Mi. Cor. destroyed (Carpenter 327th Mi.).
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 6, 1868-1925.
Elevation of this corner is nearly the same as the 5th Mi. Cor., which is 5163 ft.
Land, nearly level mesa.
Soil, sandy loam; 2nd rate.
No timber.

THE DARLING LINE, 7TH MILE

REESTABLISHMENT

Chains

S. 89 47' W., on a reestablishment of the 7th mile. Descend very gradually on mesa.

12.00 Head of draw, course S. 30 W.; begin gradual ascent of SE. slope.

33.27 The Carpenter 326th Mi. Cor. bears North, 2.12 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

42.00 Begin gradual descent into the Cimarron Valley.

51.90 Begin descent of 550 ft. over steep brushy W. slope to corner.

59.50 Rim rock, bears S. and N.; turning to NW.

80.10 Darling's 7th Mi. Cor.; a sandstone, 12x10x4 ins., mkd. 7 M; deposited 12 ins. below the surface and under mound of stone.

In place of stone

"Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 7, 1868-1925."

Land, 52.00 chs. nearly level mesa, 28.00 chs. canon wall.

Soil, sandy and stony; 2nd and 4th rate.

No timber.

THE DARLING LINE, 8TH MILE

RETRACEMENT

Beginning at the 10th Mi. Cor., as identified and hereinafter described,

East on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 9th Mi. Cor. has become obliterated

161.00 N. 3.0 lks. to the parallel; thence the 8th Mi. Cor. bears N. 1.1 chs. dist.; altitude observation on the sun for azimuth, Oct. 19, 1928.

241.50 N. 6.8 lks. to the parallel; thence the 7th Mi. Cor. bears N. 1.665 chs. dist.; on this determination the true line bears S. 89 36' W.

hains

THE DARLING LINE, 8TH MILE

REESTABLISHMENT

Thence S. 89° 36′ W., on a reestablishment of the 8th mile.
Descend gradually over broken W. slope.

11.00 Base of hill, bears N. and S.; enter wide valley, which drains S. to the Cimarron River.

16.60 Arroyo, from Sheep Pen Canon, course S. 32° E., general course S., elevation 4498 ft.

32.05 The Carpenter 325th Mi. Cor. and Astronomical Monument No. 7 bears North, 3.32 chs. dist.; a sandstone, 10x12 ins. x 7 ft., firmly set in ground and mound of stone; I obliterate the marks and bury the stone.

80.50 Darling's 8th Mi. Cor.; a sandstone, 4x8x18 ins., firmly set, mkd. C on N., NM on S., 8 M on E., and 1868 on W. face; a sandstone, 2x6x6 ins., mkd. 8 M, 12 ins. below the surface.

In place of stone
Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 8, 1868-1925.

Land, 16.00 chs. mountainous, 64.00 chs. nearly level valley.
Soil, sandy clay and stony; 2nd and 3rd rate.
No timber.

THE DARLING LINE, 9TH MILE

REESTABLISHMENT

S. 89° 36′ W., on a reestablishment of the 9th mile.
In valley.

6.10 Arroyo, course S. 5° E.

27.40 Arroyo, course S. 20° E.

31.90 The Carpenter 324th Mi. Cor. bears North, 2.83 chs. dist.; an iron post, firmly set in ground and small mound of stone; I remove this monument.

32.60 The closing cor. of secs. 21 and 22, T. 32 N., R. 35 E., NM Prin. Mer., New Mexico, bears North, 9.5 lks. dist., a red sandstone, 18x10x3 ins., loosely set, mkd. CC on S. face; old fence lines bear E., W. and S. from corner.

Chains

THE DARLING LINE, 9TH MILE

80.50 The proportional point, 9th Mi. Cor. destroyed (Carpenter 324th Mi.).

Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 9, 1868-1925.

Land, nearly level valley.

Soil, sandy clay; 2nd rate.

No timber.

THE DARLING LINE, 10TH MILE

REESTABLISHMENT

S. 89° 36' W., on a reestablishment of the 10th mile.

In valley.

00.02 A sandstone, 12x12x4 ins. above ground, firmly set, mkd. NW COR SD NO 18 on S. face; bears North, 5 lks. dist.

28.60 Arroyo, course S. 10° E.

31.34 The Carpenter 323rd Mi. Cor. bears North, 2.31 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

80.50 Darling's 10th Mi. Cor.; a red sandstone, 4x8x34 ins., lying on the ground, mkd. C., NM., 10 M and 1868 on opposite faces; a sandstone, 4x4x16 ins., mkd. 10 M, 10 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 10, 1868-1925, and build a mound of stone around the monument.

Land, nearly level valley.

Soil, sandy clay; 2nd rate.

No timber.

THE DARLING LINE, 11TH MILE

RETRACEMENT

Beginning at the 14th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

.15 N. 0.7 lks. to the parallel; the 13 + 4.85 Mi. Cor. has become obliterated.

.00 N. 0.8 lks. to the parallel; the 13th Mi. Cor. was not established by Darling.

.00 N. 3.0 lks. to the parallel; the 12th Mi. Cor. has become obliterated; altitude observation on the sun for azimuth, Oct. 9, 1928.

.41 N. 6.8 lks. to the parallel; thence the 11th Mi. Cor. bears N. 58.4 lks. dist.

.88 N. 12.2 lks. to the parallel; thence the 10th Mi. Cor. bears N. 77.8 lks. dist.; on this determination the true line bears S. 89° 52′ W.

REESTABLISHMENT

Thence S. 89° 52′ W., on a reestablishment of the 11th mile.

Ascend gradually.

3.00 Base of bluff, bears NW. and SE.; leave valley, ascend 560 ft. over broken NE. slope.

7.00 Enter very scattering cedar and pinon timber, and scattering oak brush.

25.83 The Carpenter 322.05 Mi. Cor. bears North, 1.50 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

29.50 Top of narrow ridge, at S. edge of mesa, slopes SE., rim rock 40 ft. high on mesa, bears N. and NW.; abrupt descent of 520 ft.; elevation 5200 ft.

52.00 Base of abrupt descent, bears NW and SE.; leave scattering timber and undergrowth; enter wide valley, which drains S. to the Cimarron River.

74.30 Arroyo, course S. 10° E.; old earth dam immediately S.

Chains

THE DARLING LINE, 11TH MILE

80.47 Darling's 11th Mi. Cor.: a sandstone, 12x6x2 ins., lying on the ground, mkd. C., NM., 11 M and 68 on opposite faces.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 11, 1868-1925.

Land, 52.00 chs. mountainous, 28.00 chs. valley.

Soil, sandy clay and stony; 2nd and 4th rate.

Timber, scattering cedar and pinon; undergrowth, scattering oak brush.

THE DARLING LINE, 12TH MILE

REESTABLISHMENT

S. 89° 52' W., on a reestablishment of the 12th mile.

Across valley.

29.73 The Carpenter 321st Mi. Cor. bears North, 1.10 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

53.40 Arroyo, course S.; elevation 4630 ft.

80.47 The proportional point, 12th Mi. Cor. destroyed (Carpenter 321st Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 12, 1868-1925, and build a mound of stone around the monument.

Land, nearly level valley.

Soil, sandy clay; 2nd rate.

No timber.

THE DARLING LINE, 13TH MILE

REESTABLISHMENT

S. 89° 52' W., on a reestablishment of the 13th mile.

In valley.

hains

THE DARLING LINE, 13TH MILE

20.46 The Carpenter 320th Mi. Cor. bears North, 11 lks. dist.; an iron post, firmly set in ground; I remove this monument.

38.00 Arroyo, course S. 15° E.; earth dam bears South, 4.00 chs. dist.

64.50 Arroyo, from short canon, course NE. from N. 60° E.; base of high mesa; enter scattering underbrush; ascend 250 ft. to corner.

80.47 The proportional point, the 13th Mi. Cor. was not established by Darling.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in ground, with tablet seated in the top marked Mile Corner No. 13, 1868-1925, and build a mound of stone around the monument.

Land, 64.00 chs. nearly level valley, 16.00 chs. mountainous.

Soil, sandy clay and stony; 2nd and 4th rate.

No timber; undergrowth, scattering oak on slope of mesa.

THE DARLING LINE, 14TH MILE

REESTABLISHMENT

S. 89° 52' W., on a reestablishment of the 14th mile.

Ascend abruptly 260 ft.

5.70 Rim of mesa 40 ft. high, bears N. 36° E. and S. 25° W.; enter scattering cedar and pinon timber, and oak undergrowth.

28.63 The Carpenter 319th Mi. Cor. bears North, 8 lks. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

Descend 40 ft. to rim of mesa.

35.40 Rim of mesa 40 ft. high, bears N. 30° W. and S. 22° W.; descend 480 ft. over broken SW. slope.

57.00 Base of mesa, bears NW. and S.; leave scattering timber and undergrowth.

73.50 Arroyo in Miller Canon, course S. 20° E.; ascend 20 ft. to corner, elevation 4720 ft.

80.47 Darling's 14th Mi. Cor.: a sandstone, 8x6x1 ins., mkd. 14 M, deposited under mound of stone.

In place of stone

Chains

THE DARLING LINE, 14TH MILE

Construct a concrete monument, in a form 16x24x36 ins., set 28 ins. in the ground, with tablet seated in the top marked Mile Corner No. 14, 1868-1925, and build a mound of stone around the monument.

Land, 57.00 chs. mountainous, 23.00 chs. bottom of canon.

Soil, sandy clay and stony; 3rd and 4th rate.

Timber, scattering cedar and pinon; undergrowth, scattering oak brush.

C O L O R A

LAS ANIMAS COUNTY

T.35S., R.53W.
T.35S., R.52W.

7 8 9 10 11 12

18 17 16 15 14 13

14 S 89°52' W 80.47 13 S 89°52' W 80.47 12 S 89°52' W 80.47 11 S 89°52' W 80.47 10 S 89°36' W 80.50 9 S 89°36' W 80

Canon

22 23 24 19 20 21

T.32N., R.34E.
T.32N., R.35E.

Valley of the Cimarron

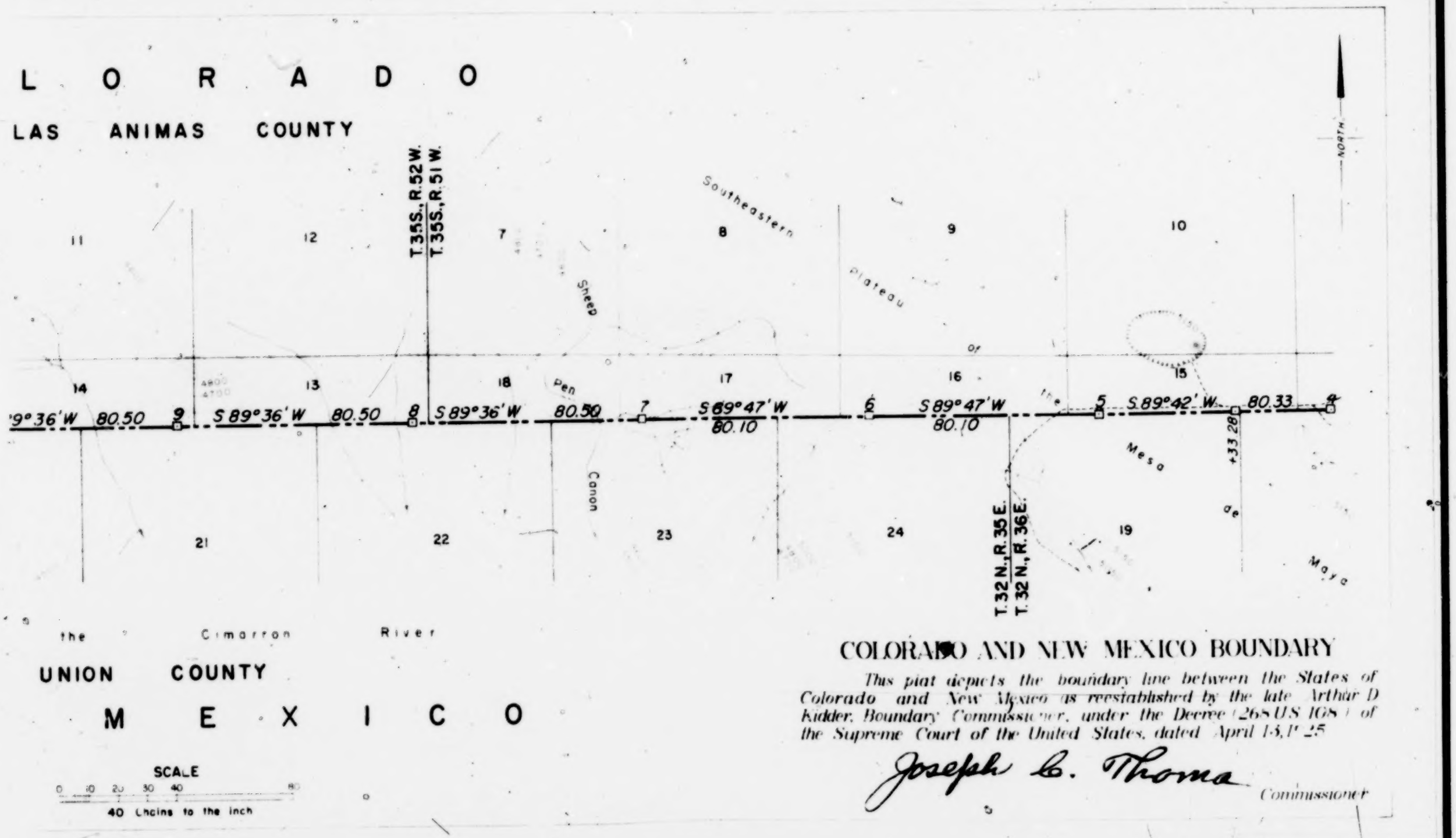
UNION COUNTY

N E W M E X

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 15

to

MILE CORNER No. 22

Chains THE DARLING LINE; 15TH MILE

RETRACEMENT

Beginning at the 16th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel: the 15th Mi. Cor. was not established by Darling.

112.00 Altitude observation on the sun for azimuth, Oct. 8, 1928.

160.12 N. 3.0 lks. to the parallel; thence the 14th Mi. Cor. bears N. 70° lks. dist.; on this determination the true line bears S. 89° 45' W.

REESTABLISHMENT

Thence S. 89° 45' W., on a reestablishment of the 15th mile.

In Miller Canon.

2.60 Low spur, slopes S.

8.50 Arroyo from short canon, course S. 40° E. from S. 50° E.

18.50 Base of hill, bears NW. and SE.; enter scattering timber-and undergrowth; ascend 140 ft. over broken NE. slope.

23.98 The Carpenter 318.05 Mi. Cor. bears South, 6 lks. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

28.00 Ascend gradually along N. slope.

80.06 The proportional point; the 15th Mi. Cor. was not established by Darling.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 15, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 6 ins. diam., bears S. 0° 30' W., 42 lks. dist., mkd. X 15 M BT.

Land, 18.00 chs. bottom of canon, 62.00 chs. mountainous.

Soil, sandy and stony; 3rd and 4th rate.

Timber, scattering cedar and pinon; undergrowth, scattering oak and service brush.

THE DARLING LINE, 16TH MILE.

REESTABLISHMENT

S. 89° 45' W., on a reestablishment of the 16th mile.
Along N. slope, through scattering timber and undergrowth.

1.50 Descend 100 ft. to gulch.

15.50 Gulch, course N.; ascend 50 ft. to spur.

18.50 Spur from mesa, slopes N.; descend 40 ft.

23.50 Arroyo, course N. 60° E.; thence up arroyo.

26.30 Leave arroyo, course turning from N. 80° E. to E.

26.95 The Carpenter 317th Mi. Cor. bears North, 4 lks. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

31.00 Arroyo, course turning from SE. to S. 80° E.

48.00 Arroyo, course N. 80° E.; ascend 270 ft. over steep SE. slope.

60.00 Top of abrupt ascent, bears N. 61° E. and S. 61° W.

67.60 Head of canon, course SE.; ascend gradually..

80.00 Darling's 16th Mi. Cor.; a sandstone, 3x6x9 ins., mkd. 16 M, deposited 12 ins. below the surface;
from which
A scrub cedar, with 8 prongs, bears N. 87° W., 66 lks. dist.; no marks; tree has been cut into.
In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 16, 1868-1925, and build a mound of stone around the monument;
from which
A pinon, 8 ins. diam., bears N. 64° 45' W., 92 lks. dist., mkd. COLO 16 M BT.
The monument is on the high mesa which forms the divide between Miller Canon and Flathead Canon, elevation 5375 ft.
Land, mountainous.
Soil, sandy and stony; 3rd and 4th rate.
Timber, scattering cedar and pinon; undergrowth, oak and service brush.

Chains

THE DARLING LINE, 17TH MILE

RETRACEMENT

Beginning at the 18th Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, Oct. 2, 1925.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

71.50 N. 0.6 lks. to the parallel; the 17 + 8.50 Mi. Cor. has become obliterated.

80.00 N. 0.8 lks. to the parallel; the 17th Mi. Cor. was not established by Darling.

160.60 N. 3.0 lks. to the parallel; thence the 16th Mi. Cor. bears S. 5.5 lks. dist.; on this determination the true line bears N. 89° 59′ W.

REESTABLISHMENT

Thence N. 89° 59′ W., on a reestablishment of the 17th mile.

Descend gradually on mesa, through scattering timber and undergrowth.

10.69 The Carpenter 316.2 Mi. Cor. bears North, 5 lks. dist.; an iron post firmly set in a mound of stone; I remove this monument.

12.30 Top of rim, bears N. 6° E. and S. 15° W.; abrupt descent of 560 ft. over broken SW. slope.

45.00 Base of abrupt slope, bears NW. and SE.; leave scattering timber, enter valley of Flathead Canon.

49.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 16 + 49 Chs., 1868-1925, and build a mound of stone around the monument.

49.10 Trail, bears N. 48° W. and S. 43° E.

59.70 Arroyo in Flathead Canon, course S. 20° E., elevation 4767 ft.; enter scattering timber and undergrowth; ascend 350 ft. over broken E. slope.

79.40 Top of abrupt ascent; ascend gradually over bench.

80.30 The proportional point; the 17th Mi. Cor. was not established by Darling.

Chains

THE DARLING LINE, 17TH MILE

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 17, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 8 ins. diam., bears S. 30° W., 2.08 chs. dist., mkd. NM 17 M BT.

Land, 65.00 chs. mountainous, 15.00 chs. bottom of canon.

Soil, sandy and stony; 3rd and 4th rate.

Timber, scattering cedar and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 18TH MILE

REESTABLISHMENT

N. 89° 59′ W., on a reestablishment of the 18th mile.

Ascend gradually on bench, through scattering timber and undergrowth.

5.00 Ascend abruptly 210 ft. over steep E. slope.

10.20 Top of rim rock, bears NW. and SE.; ascend gradually on narrow point of mesa.

13.97 The closing cor. of Tps. 32 N., Rs. 33 and 34 E., NM Prin. Mer., New Mexico, bears South, 3.5 lks. dist.; a sandstone, 4x10x16 ins., loosely set in a small mound of stone, mkd. CC on N., T 32 N on S., R 33 E on W., and R 34 E on E. face.

18.13 The Carpenter 315.1 Mi. Cor. bears South, 9 lks. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

Descend gradually.

33.00 Head of canon, course S. 10° E.; ascend gradually.

46.50 Leave scattering timber and undergrowth, bears N. and S. 20° E.; mesa widens.

55.00 On high mesa, elevation 5380 ft.; begin gradual descent.

58.50 Wood road, bears NW. and SE.; enter scattering timber and undergrowth.

Chains

THE DARLING LINE, 18TH MILE

80.30 Darling's 18th Mi. Cor.: a sandstone, 6x8x24 ins., loosely set in mound of stone and earth, no marks; a sandstone, 3x8x8 ins., mkd 18 M, 10 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 18, 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 10 ins. diam., bears N. 19° 15' W., 79 lks. dist., mkd COLO 18 M BT.

A cedar, 7 ins. diam., bears S. 49° 45' W., 68 lks. dist., mkd. NM 18 M BT.

Land, mountainous.

Soil, sandy and stony; 3rd and 4th rate.

Timber, scattering cedar and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 19TH MILE

RETRACEMENT

Beginning at the 19th Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, Oct. 1, 1925, East, on a retracement of the Darling boundary, on a transit line describing a tangent.

81.43 N. 0.8 lks. to the parallel; thence the 18th Mi. Cor. bears N. 34. lks. dist.: on this determination the true line bears S. 89° 46' W.

REESTABLISHMENT

Thence S. 89° 46' W., on a reestablishment of the 19th mile.

Descend gradually on mesa, through scattering timber and undergrowth.

0.80 Rim rock, bears N. 15° W. and S. Abrupt descent of 570 ft. over steep W. slope.

24.50 Gulch, course SW.

THE DARLING LINE, 19TH MILE

24.75 The Carpenter 314th Mi. Cor. bears South, 25 lks. dist.; an iron post, firmly set in ground and mound of stone. I remove this monument.

26.80 Zeus Canon Creek, water in pools, course S. 32° E., elevation 4813 ft.; ascend gradually.

30.70 Old trail, bears NW. and S. 51° E.

31.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Milg Corner No. 18 + 31 Chs., 1868-1925.

36.00 Ascend 540 ft. over broken NE. slope.

79.80 Top of basalt rim rock, 50 ft. high, bears N. 46° W. and S. 53½° E.; leave scattering timber at foot of rim; ascend NE. slope.

81.43 Darling's 19th Mi. Cor.; a basalt stone, 2x8x10 ins., mkd. 19 M. deposited under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 19, 1868-1925, and build a mound of stone around the monument.

Land, mountainous.

Soil, sandy and stony; 4th rate.

Timber, scattering cedar and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 20TH MILE

RETRACEMENT

Beginning at the 20th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

82.72 N. 0.8 lks. to the parallel; thence the 19th Mi. Cor. bears S. 32.2 lks. dist.; altitude observation on the sun for azimuth, Oct. 1, 1928; on this determination the true line bears N. 89° 47′ W.

REESTABLISHMENT

Thence N. 89° 47′ W., on a reestablishment of the 20th mile.

Ascend NE. slope.

Chains — THE DARLING LINE, 20TH MILE

2.60 Top of ascent, bears NW. and SE.; enter scattering oak brush on nearly level mesa top, elevation 5460 ft.

23.39 Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 19 + 23.39 Chs., 1868-1925, and build a mound of stone around the monument:

from which

The Carpenter 313th Mi. Cor. bears South, 33.7 lks. dist.; an iron post, firmly set in mound of stone.

In place of post

Construct a concrete monument, 8x8x36 ins., set 18 ins. in the ground, with triangle templet seated in the top; geographic position of this point by U. S. Coast and Geodetic Survey, 1922:

North Latitude 36° 59′ 57.636″
West Longitude 103° 23′ 48.850″

Descend W. slope.

26.00 Top of rim rock, bears N. 15° W. and S. 15° E.; abrupt descent of 380 ft.

45.60 Gulch, course S. 10° W.; ascend 100 ft. to spur.

49.60 Spur from mesa, slopes S.; descend 70 ft.

61.20 Gulch, course S. 30° E.; ascend 80 ft.

65.70 Spur from mesa, slopes S.; thence along broken S. slope.

76.50 Spur from mesa, slopes S. 20° E.; descend 200 ft.

82.72 Darling's 20th Mi. Cor.; a sandstone, 6x8x12 ins., mkd. 20, deposited under a mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 20, 1868-1925, and build a mound of stone around the monument.

Land, mountainous.

Soil, sandy and stony; 4th rate.

No timber; undergrowth, oak brush.

hains

THE DARLING LINE, 21ST MILE

RETRACEMENT

Beginning at the 21st Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, Oct. 1, 1928.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

0.80 N. 0.8 lks. to the parallel; thence the 20th Mi. Cor. bears N. 58 lks. dist.; on this determination the true line bears S. 89° 35′ W.

REESTABLISHMENT

Thence S. 89° 35′ W., on a reestablishment of the 21st mile.

Descend 70 ft. on steep W. slope, through scattering undergrowth.

6.20 Arroyo, course S. 20° E.; thence across nearly level valley, elevation 4815 ft., which drains S. to the Cimarron River.

17.00 Arroyo, course S. 15° E.

21.45 The Carpenter 312th Mi. Cor. bears South, 45 lks. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

45.70 Arroyo, course S. 60° W.; enter scattering timber; thence along broken S. slope.

48.70 Arroyo, course S. 15° E.

66.50 Arroyo, course S. 5° E.

79.80 Darling's 21st Mi. Cor.; a red sandstone, 6x8x24 ins., firmly set in mound of stone, mkd. C on N., NM on S., 21 M on E., and 1868 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in ground on bed rock, with tablet seated in the top marked Mile Corner No. 21, 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 6 ins. diam., bears N. 30° E., 1.50 chs. dist., mkd. COLO 21 M BT.

Land, 40.00 chs. rolling, and 40.00 chs. nearly level valley.

Soil, sandy clay and stony; 3rd and 4th rate.

Timber, scattering cedar and pinon; undergrowth, scattering oak brush.

Chains

THE DARLING LINE, 22ND MILE

RETRACEMENT

Beginning at the 22nd Mi. Cor., as identified and hereinafter described.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.73 N. 0.8 lks. to the parallel; thence the 21st Mi. Cor. bears N. 22 lks. dist.; altitude observation on the sun for azimuth, Nov. 2 1927; on this determination the true line bears S. 89° 50' W.

REESTABLISHMENT

Thence S. 89° 50' W., on a reestablishment of the 22nd mile.

Along broken S. slope near foot of bluff; through scattering timber and undergrowth.

16.23 The closing cor. of secs. 20 and 21, T. 32 N., R. 33 E., NM Prin. Mer., New Mexico, bears North, 9.5 lks. dist.; a sandstone 12x10x6 ins. above ground, firmly set in mound of stone, mkd. CC on S. face.

18.30 Arroyo, course S.

22.11 The Carpenter 311th Mi. Cor. bears South, 30 lks. dist.; an iron post, firmly set in mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

28.90 Arroyo, course S.

34.50 Arroyo, course S. 20° E.

43.90 Spur, slopes S.

57.30 Arroyo, course S. 20° E.

79.73 Darling's 22nd Mi. Cor.; a sandstone, 30x6x6 ins., lying on the ground, mkd. C., NM., 22 M, and 68 on opposite faces.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 22; 1868-1925;

from which

A cedar, 8 ins. diam., bears N. 41¼° E., 1.46 chs. dist., mkd. COLO 22 M BT.

Chains

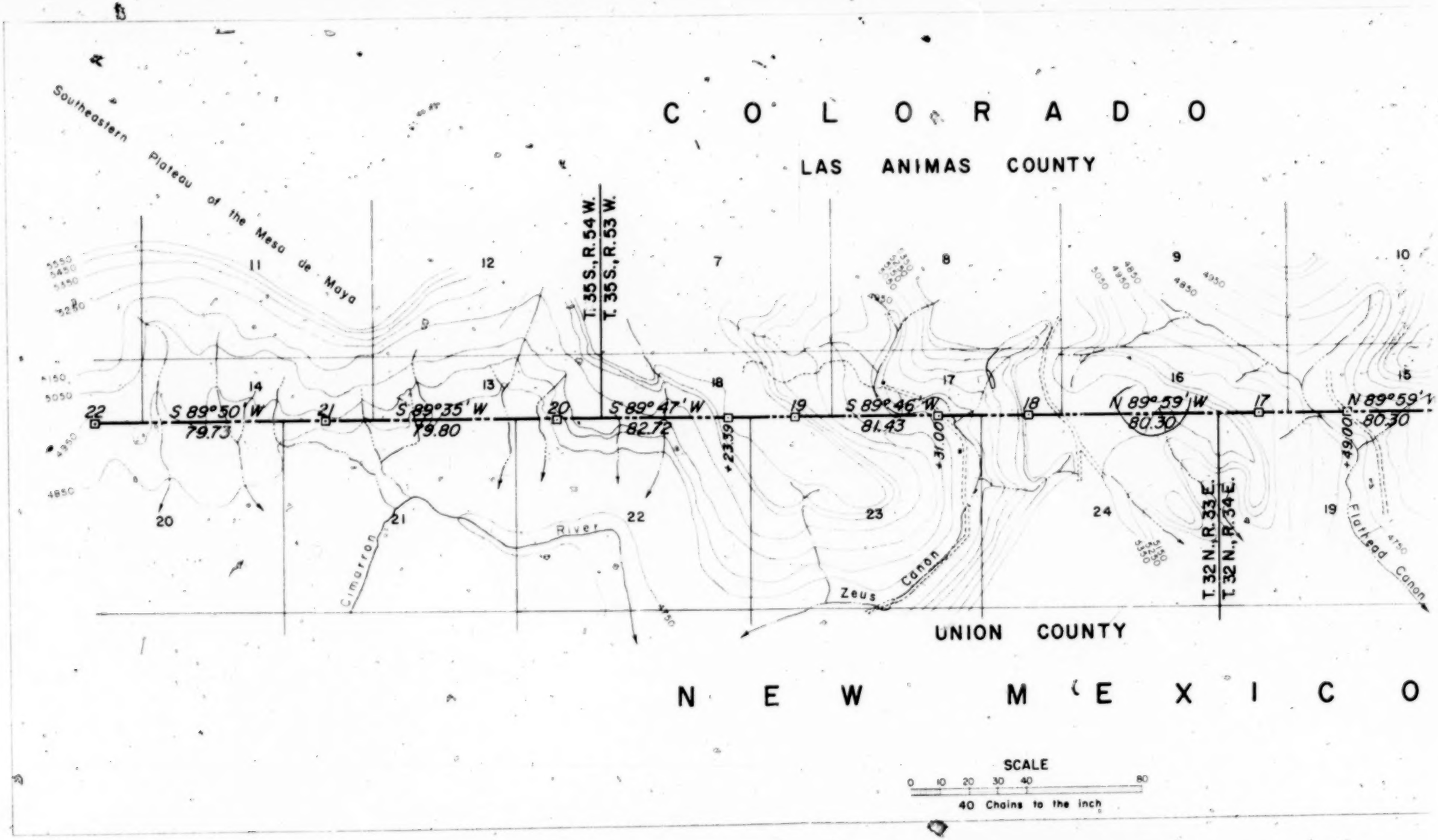
THE DARLING LINE, 22ND MILE

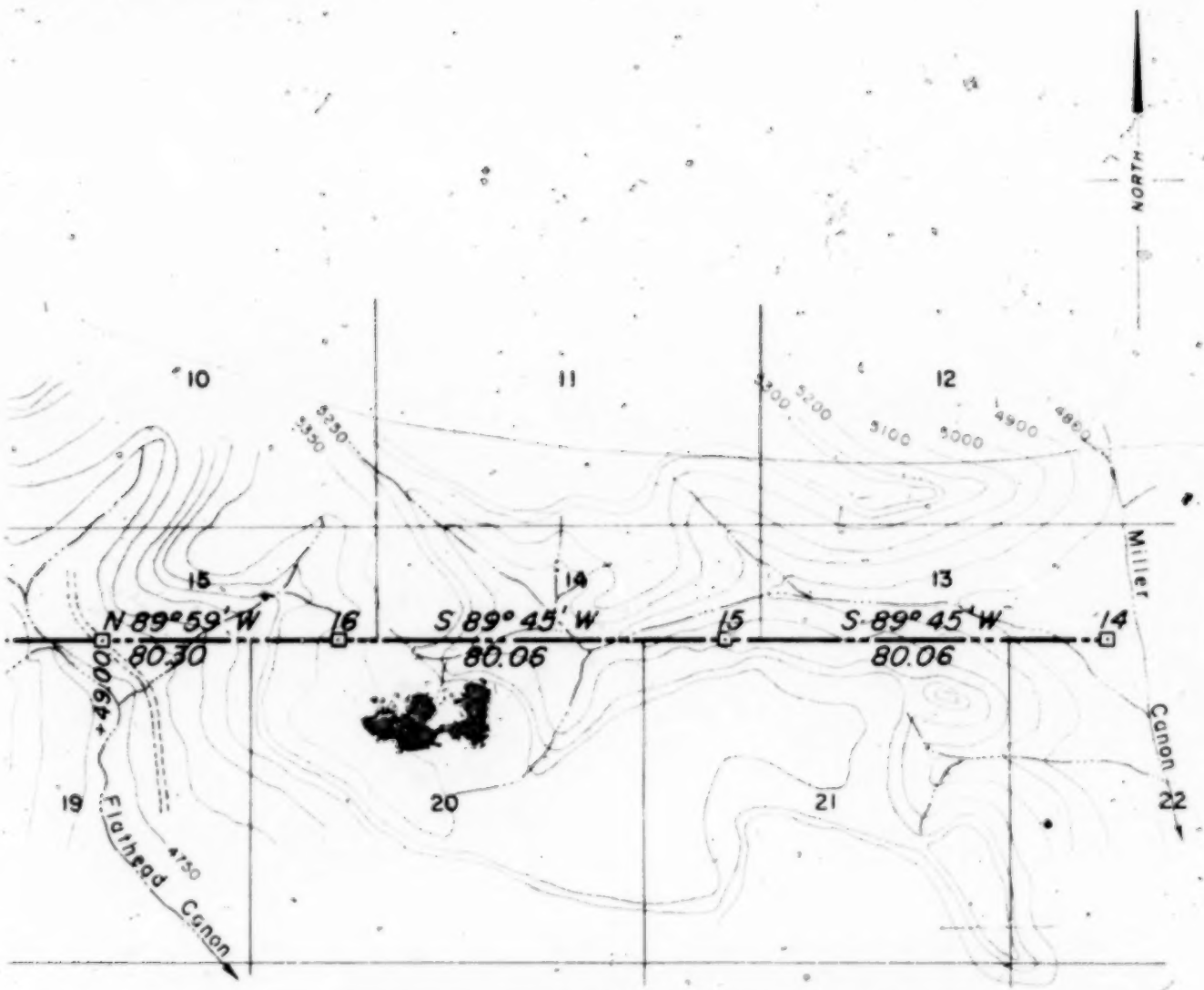
A pinon, 14 ins. diam., bears S. 78½ E., 2.55 chs. dist., mkd. NM 22 M BT.

Land, rolling; near foot of bluff at N. side of the Cimarron Valley.

Soil, sandy and stony; 3rd and 4th rate.

Timber, scattering scrub cedar and pinon; undergrowth, oak brush.


COLORADO
LAS ANIMAS COUNTY
Southeastern plateau of the Mesa de Maya
T. 35 S., R. 54 W.
T. 35 S., R. 53 W.
S 89° 50' W
79.73
S 89° 35' W
79.80
S 89° 47' W
82.72
S 89° 46' W
81.43
N 89° 59' W
80.30
N 89° 59' W
80.30
+23.39
+31.00
+49.00
T. 32 N., R. 33 E.
T. 32 N., R. 34 E.
Cimarron River
Zeus Canon
Flatiead Canon
UNION COUNTY
NEW MEXICO
SCALE
0 10 20 30 40 80
40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

C O

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 23

to

MILE CORNER No. 29

Chains

THE DARLING LINE. 23RD MILE

RETRACEMENT

Beginning at the 24th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 23rd Mi. Cor. has become obliterated.

159.70 N. 3.0 lks. to the parallel; thence the 22nd Mi. Cor. bears N. 19.3 lks. dist.; on this determination the true line bears S. 89° 56' W.

REESTABLISHMENT

Thence S. 89° 56' W., on a reestablishment of the 23rd mile.

Ascend 230 ft. over SE. slope, through scattering scrub timber and scattering undergrowth.

15.71 The closing cor. of secs. 19 and 20, T. 32 N., R. 33 E., NM Prin. Mer., New Mexico, bears North, 37.5 lks. dist.; a basalt stone, 16x10x6 ins., loosely set in a mound of stone, mkd. CC on S. face.

23.33 The Carpenter 310th Mi. Cor. bears South, 20 lks. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.

30.20 Top of narrow spur, slopes S. 20° W.; descend 90 ft.

33.00 Gulch, course S. 25° W.; ascend 30 ft.

34.70 Descend 150 ft. over SW. slope.

56.60 Stone fence, bears N. 5° E. and S. 5° W.

74.70 Base of SW. slope; begin gradual ascent.

79.85 The proportional point; unable to identify Darling's 23rd Mi. Cor. Set a basalt stone, 32x24x10 ins., in a concrete base, 21 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 23, 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 10 ins. diam., bears N. 64° W., 27 lks. dist., mkd. COLO 23 M BT.

A cedar, 7 ins. diam., bears S. 59½° E., 1.30 chs. dist., mkd. NM 23 M BT.

Chains

THE DARLING LINE, 23RD MILE

Land, rolling mountainous.
Soil, sandy and stony; 3rd and 4th rate.
Timber, scattering scrub cedar and pinon; undergrowth, scattering oak brush.

THE DARLING LINE, 24TH MILE

REESTABLISHMENT

S. 89° 56′ W., on a reestablishment of the 24th mile.
Ascend gradually.

2.20 Begin gradual descent.

9.40 Arroyo, course S.; begin gradual ascent of 120 ft.

10.36 The closing cor. of Tps. 32 N., Rs. 32 and 33 E., NM Prin. Mer., New Mexico, bears South, 8.5 lks. dist.; a sandstone, 8x8x8 ins. above ground, firmly set in small mound of stone, mkd. CC on N., T 32 N on S., R 32 E on W., and R 33 E on E. face.

23.84 The Carpenter 309th Mi. Cor. bears South, 9 lks. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

57.20 Top of low knoll in valley, elevation 5000 ft., bears N. and S.; begin gradual descent; leave scattering scrub timber.

79.85 Darling's 24th Mi. Cor.; a basalt stone, 8x8x3 ins., mkd. 24 M, deposited under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 24, 1868-1925.

Corner stands under E. and W. fence.

Land, gently rolling, in valley near mouth of Covert Canon on N. side of the Cimarron Valley.

Soil, sandy and stony; 3rd rate.

Timber, scattering scrub cedar and pinon; undergrowth, scattering oak brush.

Chains

THE DARLING LINE, 25TH MILE

RETRACEMENT

Beginning at the 25th Mi Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.17 N. 0.8 lks. to the parallel; thence the 24th Mi. Cor. bears N. 27.7 lks. dist.; on this determination the true line bears S. 89° 48' W.

REESTABLISHMENT

Thence S. 89° 48' W., on a reestablishment of the 25th mile.
Descend 60 ft. in valley.

10.53 The closing cor. of secs. 23 and 24, T. 32 N., R. 32 E., NM Prin. Mer., New Mexico, bears North, 6 lks. dist.; a basalt stone, 10x8x2 ins., loosely set in mound of stone, mkd. CC on S. face.

24.00 The Carpenter 308th Mi. Cor. bears North, 4 lks. dist.; an iron post, firmly set; I remove this monument.

33.90 Covert Canon Creek, water in holes and running stream, 10 lks. wide, sand and gravel bottom, course SW., general course S. and SE., elevation 4870 ft.; ascend 50 ft. to top of bluff W. of creek.

45.70 Top of bluff, bears N. and S.; begin gradual ascent.

62.00 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 24 + 62 Chs., 1868-1925.

62.20 Wagon road, bears NW. and SE.

80.17 Darling's 25th Mi. Cor.; a sandstone, 36x7x5 ins., firmly set, mkd. C on N., NM on S., 25 on E., and 68 on W. face.

In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 25, 1868-1925.

Land, nearly level valley, at mouth of Covert Canon, on N. side of the Cimarron Valley.

Soil, sandy; 2nd and 3rd rate.

No timber.

Chains

THE DARLING LINE, 26TH MILE

RETRACEMENT

Beginning at the 26th Mi. Cor., as identified and hereinafter described.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.96 N. 0.8 lks. to the parallel; thence the 25th Mi. Cor. bears N. 64.3 lks. dist.; on this determination the true line bears S. 89° 32′ W.

REESTABLISHMENT

Thence S. 89° 32′ W., on a reestablishment of the 26th mile.

Ascend gradually in valley.

9.87 The closing cor. of secs. 22 and 23, T. 32 N., R. 32 E., NM Prin. Mer., New Mexico, bears North, 3 lks. dist.; a limestone, 16x8x4 ins. above ground, firmly set, mkd. CC on S. face.

23.86 The Carpenter 307th Mi. Cor. bears North, 39 lks. dist.; an iron post, firmly set; I remove this monument.

56.00 Base of bluff, bears NE. and SW.; enter scattering scrub timber, bearing NE. and SW.; ascend 60 ft.

[illegible].10 Small spur, slopes S.

73.50 Gulch, course S. 30° E.; ascend 60 ft. to corner over NE. slope.

79.96 Darling's 26th Mi. Cor.; a sandstone, 8x6x3 ins., mkd. +, deposited under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 26, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pinon, 8 ins. diam., bears N. 33¼° E., 1.03 chs. dist., mkd. COLO 26 M BT.

A cedar, 5 ins. diam., bears S. 27° E., 76 lks. dist., mkd. NM 26 M BT.

Land, 56.00 chs. nearly level valley, 24.00 chs. broken, near base of bluff.

Soil, sandy and stony; 2nd and 4th rate.

Timber, scattering scrub cedar and pinon.

Chains

THE DARLING LINE, 27TH MILE

RETRACEMENT

Beginning at the 27th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.20 N. 0.8 lks. to the parallel; thence the 26th Mi. Cor. bears N. 18.4 lks. dist.; on this determination the true line bears S. 89° 52' W.

REESTABLISHMENT

Thence S. 89° 52' W., on a reestablishment of the 27th mile.

Ascend 180 ft. over E. slope, through scattering scrub timber and undergrowth.

3.59 The Carpenter 306.25 Mi. Cor. bears North, 81 lks. dist.: an iron post, firmly set in ground and mound of stone; I remove this monument.

9.63 The closing cor. of secs. 21 and 22, T. 32 N., R. 32 E., NM Prin. Mer., New Mexico, bears North, 11.5 lks. dist.: a sandstone, 14x14x10 ins., loosely set in a mound of stone, mkd. CC on S. face.

14.60 Spur slopes S.; descend 140 ft.

22.30 Gulch, course S. 25° E.; ascend 440 ft. over broken SE. slope.

71.40 Rim rock, 18 ft. high, bears N. 60° E. and SW.; continue ascent; leave scattering timber at foot of rim.

76.60 Top of ascent on basalt dyke, bearing NW. and SE.; descend 10 ft. to corner over SW. slope, through dense oak brush.

79.20 Darling's 27th Mi. Cor.; a basalt stone, 18x10x8 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 27 M on E., and 1868 on W. face; a sandstone, 8x6x3 ins., mkd. +, under the mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set in a concrete base, 16 ins. in ground on bed rock, with tablet seated in the top marked Mile Corner No. 27, 1868-1925, and build a mound of stone and earth around the monument.

Land, mountainous.

Soil, sandy and stony; 4th rate.

Chains

THE DARLING LINE, 27TH MILE

Timber, scattering cedar and pinon; undergrowth, scattering oak brush, last 2.00 chs. dense oak brush.

THE DARLING LINE, 28TH MILE

RETRACEMENT

Beginning at the 28th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

55.12 Altitude observation on the sun for azimuth, Nov. 15, 1927.

80.00 N. 0.8 lks. to the parallel; thence the 27th Mi. Cor. bears N. 44.2 lks. dist.; on this determination the true line bears S. 89° 41' W.

REESTABLISHMENT

Thence S. 89° 41' W., on a reestablishment of the 28th mile.

Descend 20 ft. over SW. slope, through dense oak brush.

1.00 Head of drain from mesa, course SE.; ascend 50 ft.

5.00 Rim of mesa, overlooking the Cimarron Valley, bears NE. and S. 20° W., elevation 5661 ft.; thence across nearly level mesa; leave oak brush.

15.00 Begin gradual descent.

24.88 The Carpenter 305th Mi. Cor. bears North, 1.02 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

41.60 Enter timber and undergrowth, bearing N. and S.

55.00 Head of canon, course N. 60° W.; ascend very gradually.

70.00 Begin gradual descent.

80.00 Darling's 28th Mi. Cor.; a sandstone, 6x6x2 ins., mkd. 28 M., deposited under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner

Chains

THE DARLING LINE, 28TH MILE

No. 28, 1868-1925, and build a mound of stone around the monument:

from which

A pinon, 6 ins. diam., bears N. 16° E., 2.11 chs. dist., mkd. COLO 28 M BT.

A pinon, 4 ins. diam., bears S. 51° E., 78 lks. dist., mkd. NM 28 M BT.

Land, nearly level mesa.

Soil, sandy and stony; 3rd and 4th rate.

Timber, scattering scrub cedar and pinon; undergrowth, oak brush

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THE DARLING LINE, 29TH MILE

RETRACEMENT

Beginning at the 29th Mi. Cor., as identified and hereinafter described.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.25 N. 0.8 lks. to the parallel; thence the 28th Mi. Cor. bears N. 16.9 lks. dist.; on this determination the true line bears S. 89° 53' W.

REESTABLISHMENT

Thence S. 89° 53' W., on a reestablishment of the 29th mile.

Descend gradually on mesa, through scattering timber and undergrowth.

0.74 The Carpenter 304.3 Mi. Cor. bears North, 1.29 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.

13.20 Rim rock, 18 ft. high, bears N. 20° W. and SE.; descend 240 ft.

23.20 Canon, course N. 20° W.; ascend 240 ft.

33.10 Rim rock, bears N. 20° W. and SE.; thence ascend gradually.

44.00 Begin gradual descent; elevation 5660 ft.

61.00 Rim rock, 20 ft. high, bears N. and S.; descend 270 ft. over steep W. slope.

The Darling Line, 29th Mile

Darling's 29th Mi. Cor.; a sandstone, 24x9x5 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 29 M on E., and 1868 on W face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set in concrete base, 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 29, 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 4 ins. diam., bears N. 27½ E., 85 lks. dist., mkd. COLO 29 M BT.

A cedar, 6 ins. diam., bears S. 18½ W., 1.65 chs. dist., mkd. NM 29 M BT.

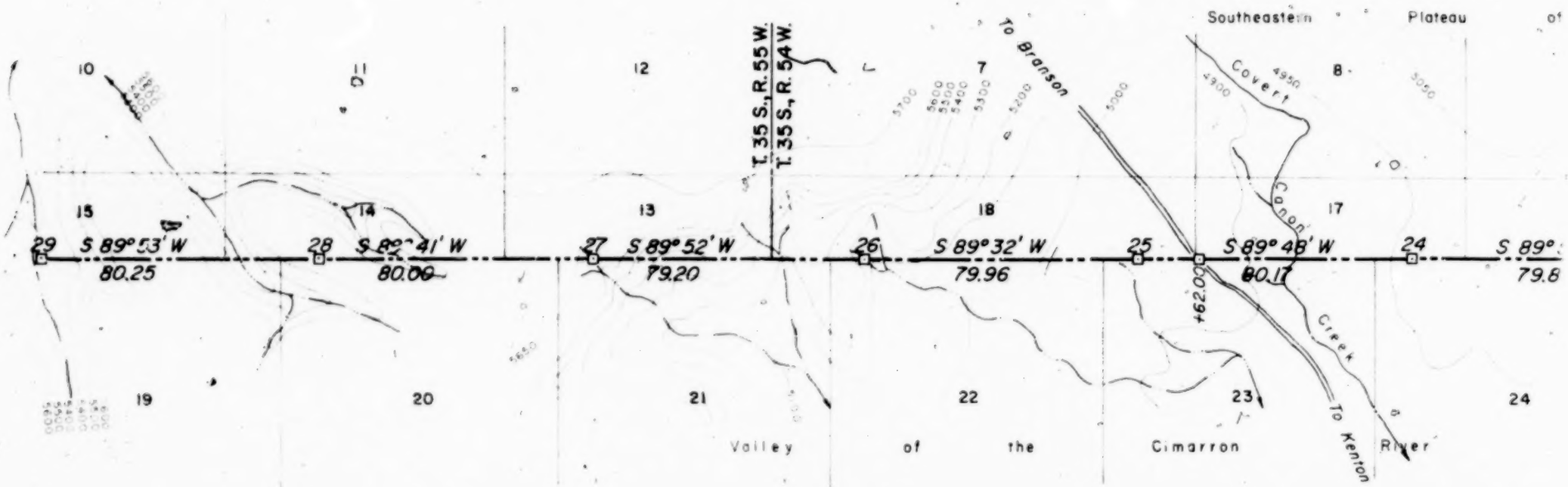
Land, mountainous.

Soil, sandy and stony, 4th rate.

Timber, scattering scrub cedar and pinon; undergrowth, oak and service brush.

C O L O R A D O

LAS ANIMAS COUNTY



UNION COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch

Colon
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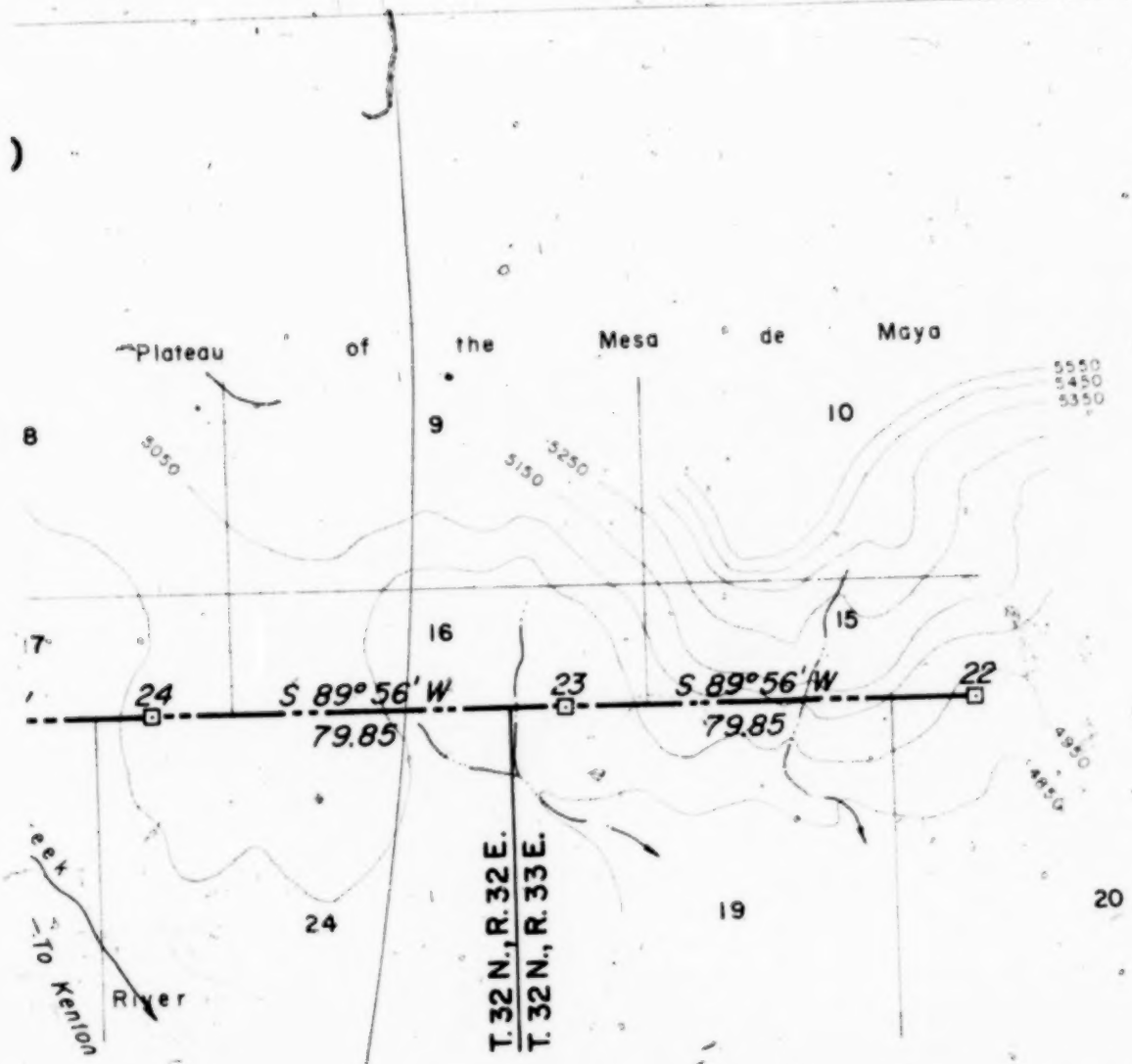


COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D. Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 30

to

MILE CORNER No. 38

Chains THE DARLING LINE, 30TH MILE

RETRACEMENT

Beginning at the 32nd Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

12.52 N. 0.0 lks. to the parallel; intersect Darling's Astronomical Monument No 1; on this determination the true line bears West.

Thence

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

14.98 Altitude observation on the sun for azimuth, Nov. 12, 1927.

67.50 N. 0.6 lks. to the parallel; the 31st Mi. Cor. has become obliterated.

147.50 N. 2.5 lks. to the parallel; the 30th Mi. Cor. has become obliterated.

227.41 N. 6.1 lks. to the parallel; thence the 29th Mi. Cor. bears N. 73.3 lks. dist.; on this determination the true line bears S. 89° 49' W.

REESTABLISHMENT

Thence S. 89° 49' W., on a reestablishment of the 30th mile.

Cross broken bottom of canon, through scattering scrub timber and undergrowth.

0.90 Arroyo in canon, course N.

13.04 The Carpenter 303.15 Mi. Cor. bears North, 1.21 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

15.40 Arroyo in canon, course NE.

34.00 Arroyo in canon, course N. 75° E.; ascend 260 ft. over steep SE. slope.

40.60 Rim rock, 15 ft. high, bears N. and S.; continue ascent.

46.30 Begin gradual descent.

55.00 Begin gradual ascent.

66.00 Leave timber and undergrowth, bears N. and S.

70.00 Top of high mesa ridge, bears N. and S., elevation 5694 ft.; begin gradual descent.

Chains

THE DARLING LINE, 30TH MILE

79.97 The proportional point; 30th Mi. Cor. destroyed (Carpenter 303rd Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 30, 1868-1925, and build a mound of earth around the monument.

Land, rough mountainous.

Soil, sandy and stony; 3rd and 4th rate.

Timber, scattering scrub cedar and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 31ST MILE

REESTABLISHMENT

S. 89° 49' W., on a reestablishment of the 31st mile.

Descend gradually over NW. slope.

4.70 Trail, bears N. 20° W. and S. 20° E.

9.50 Head of canon, course N. 5° W.; ascend over gradual NE. slope.

24.83 The Carpenter 302nd Mi. Cor. bears North, 1.33 chs. dist.; an iron post, firmly set; I remove this monument.

28.00 Top of gradual ascent on mesa, elevation 5700 ft.; thence across nearly level mesa top; divide between Covert and Cow Creek Canons, bears NW. and SE.

43.00 Begin gradual descent.

49.00 Enter scrub timber and undergrowth, bearing N. and S.

62.50 Begin gradual ascent.

79.97 The proportional point; 31st Mi. Cor. destroyed (Carpenter 302nd Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 31, 1868-1925;

from which

A cedar, 4 ins. diam., bears N. 76¼° E., 1.64 chs. dist., mkd. COLO 31 M BT.

Chains

THE DARLING LINE, 31ST MILE

A pinon, 5 ins. diam., bears S. 21° E., 1.73 chs. dist., mkd. NM 31 M BT.

Corner at W. edge of timber and undergrowth.

Land, slightly rolling mesa top.

Soil, sandy loam; 3rd rate.

Timber, medium thick scrub cedar and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 32ND MILE

REESTABLISHMENT

S. 89° 49′ W., on a reestablishment of the 32nd mile.

Ascend gradually on mesa top.

2.00 Top of ascent.

6.50 Begin gradual descent.

16.59 The Carpenter 301.1 Mi. Cor. bears North, 1.30 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument. The two bearing trees could not be identified; enter timber and undergrowth, bearing N. and S.

26.70 Rim rock, bears N. 46° E. and S. 46° W.; descend 130 ft.

31.70 Bottom of canon, course SW.; ascend 140 ft.

36.70 Top of rim rock, 40 ft. high, bears N. 20° E. and S. 80° W.; ascend gradually.

51.30 Large cedar tree, about 6 ft. at base, with 3 large prongs, bears S. 24 lks. dist.; tree mentioned by Darling. The tree stands on top of high mesa, elevation 5704 ft.

57.50 Begin gradual descent.

62.50 Trail, bears NE. and SW.

67.47 Darling's Astronomical Monument No. 1; a sandstone, 42x9x9 ins. lying on mound of earth and stone, mkd. COLO, NEW MEX. 37 NL on three faces; a sandstone, 32x9x7 ins., the remaining portion of the original monument, firmly set in the mound of earth and stone, where I construct the new monument.

Chains

THE DARLING LINE, 32ND MILE

Set the original stone, trimmed to 36x9x9 ins., in a concrete base, 24 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 31 + 67.47 Chs., 1868-1925, and build a mound of stone and earth around the monument;

from which

A pinon, 5 ins. diam., bears N. 13½ W., 55 lks. dist., mkd. WP COLO BT.

A cedar, 9 ins. diam., bears S. 64 E., 1.25 chs. dist., mkd. WP NM BT.

REESTABLISHMENT

Thence

West, continuing on a reestablishment of the 32nd mile.

12.52 Darling's 32nd Mi. Cor.; a sandstone, 10x8x1 ins., mkd. 32 M, deposited under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 32, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 12 ins. diam., bears N. 55¾ W., 47 lks. dist., mkd. COLO 32 M BT.

A pinon, 6 ins. diam., bears S. 78½ E., 19 lks. dist., mkd. NM 32 M BT.

Land, mountainous.

Soil, sandy and stony; 3rd and 4th rate.

Timber, medium thick scrub cedar and pinon, few yellow pine in canon; undergrowth, oak and service brush.

THE DARLING LINE, 33RD MILE

RETRACEMENT

Beginning at the 33rd Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

Chains

THE DARLING LINE, 33RD MILE

79.36 N. 0.8 lks. to the parallel; thence the 32nd Mi. Cor. bears N. 89.5 lks. dist.; on this determination the true line bears S. 89° 21′ W.

REESTABLISHMENT

Thence S. 89° 21′ W., on a reestablishment of the 33rd mile.
Descend gradually on mesa, through scrub timber and undergrowth.

1.00 Descend 160 ft. over brushy W. slope.

8.00 Rocky gulch, course N. 50° W.; ascend 80 ft. over brushy NE. slope.

9.50 Trail, bears NW. and SE.

12.00 Thence along steep brushy N. slope, crossing point of spur.

23.56 The Carpenter 300th Mi. Cor. bears North, 1.52 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument; descend 380 ft. over brushy W. slope.

38.00 Base of bluff, bears N. and S.; leave scrub timber and undergrowth; enter valley of Cow Creek Canon, which drains S. to the Cimarron River.

69.24 Farm house, bears N. about 20 chs. dist.

72.70 Dry bed of Cow Creek, course S., elevation 5200 ft.; begin gradual ascent.

75.40 Wagon road, bears N. and S.

76.00 Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 32 + 76 Chs., 1868-1925;
from which
A pinon, 5 ins. diam., bears S. 48° W., 2.38 chs. dist., mkd. WP NM BT.

77.80 Base of bluff, bears N. and S.; enter scrub timber and undergrowth; ascend E. slope.

78.86 Farm house, bears S. about 33 chs. dist.

79.36 Darling's 33rd Mi. Cor.; a sandstone ledge, with exposed surface of 36x60x6 ins., mkd. +;
from which
A sandstone boulder, 10x6x7 ft., bears North, 7 lks. dist., checking Darling record.

Chains

THE DARLING LINE, 33RD MILE

At + on ledge

I seat a tablet marked Mile Corner No. 33, 1868-1925;

from which

A pinon, 6 ins. diam., bears N. 67° W., 57 lks. dist., mkd. COLO 33 M BT.

A pinon, 6 ins. diam., bears S. 21° W., 1.67 chs. dist., mkd. NM 33 M BT.

Land, 40.00 chs. valley and 40.00 chs. mountainous.

Soil, sandy and stony; 2nd and 4th rate.

Timber, scattering scrub cedar and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 34TH MILE

RETRACEMENT

Beginning at the 37th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

66.17 Hour angle observation of Polaris for azimuth, Nov. 7, 1927.

80.00 N. 0.8 lks. to the parallel; the 36th Mi. Cor. has become obliterated.

160.00 N. 3.0 lks. to the parallel; the 35th Mi. Cor. has become obliterated.

240.00 N. 6.8 lks. to the parallel; the 34th Mi. Cor. has become obliterated.

311.75 Altitude observation on the sun for azimuth, Nov. 8, 1927.

320.32 N. 12.2 lks. to the parallel; thence the 33rd Mi. Cor. bears N. 2.163 chs. dist.; on this determination the true line bears S. 89° 37′ W.

REESTABLISHMENT

Thence S. 89° 37′ W., on a reestablishment of the 34th mile.

Ascend over E. slope, through scrub timber and undergrowth.

4.23 The Carpenter 299.25 Mi. Cor. bears North, 2.17 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the remaining bearing tree, other tree could not be identified; ascend 470 ft. over broken, brushy NE. slope.

Chains

THE DARLING LINE, 34TH MILE

26.60 Gulch, course N. 60 E.

40.70 Trail, bears NE. and SW. turning to SE.

41.20 Gulch, course NE.

47.50 Ascend 260 ft. over steep E. slope

66.50 Rim rock, 30 ft. high, bears N. 14 W. and S. 14 E.; leave timber at foot of rim; ascend gradually on narrow mesa.

70.00 Top of ascent on Hardesty Butte, elevation 6013 ft., ridge bears N. 10 W. and S. 10 E.

74.00 Rim rock, 20 ft. high, bears N. 10 W. and S. 10 E.; descend abruptly 100 ft. to corner over brushy W. slope.

80.08 The proportional point; 34th Mi. Cor. destroyed (Carpenter 299th Mi.).

Set a basalt stone, 30x16x10 ins., in a concrete base, 20 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 34, 1868-1925, and build a mound of stone around the monument.

Land, rough mountainous.

Soil, sandy and stony; 4th rate.

Timber, medium thick scrub cedar and pinon, undergrowth oak and service brush.

THE DARLING LINE, 35TH MILE

REESTABLISHMENT

S. 88 37 W., on a reestablishment of the 35th mile.

Descend W. slope, through scattering oak brush.

10.50 Head of drain, course S. 20 W.; ascend gentle SE. slope.

14.00 Begin gradual descent over SW. slope.

24.78 The Carpenter 298th Mi. Cor. bears North, 2.60 chs. dist.; an iron post, firmly set in gravel and mound of stone; I remove the monument; leave oak brush; thence across nearly level land.

43.50 Wagon road, bears NW. and SE.

44.00 Construct a concrete monument, in a form 16x24x36 ins., set 22 ins.

chains THE DARLING LINE, 35TH MILE

in the ground, with tablet seated on the top marked Mile Corner No. 34 ■ 44 Chs., 1868-1925.

45.27 Denver-Amarillo Gas Line, bears N. 64° 10' W. and S. 64° 10' E.

80.08 The proportional point, 35th Mi. Cor. destroyed (Carpenter 298th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 35, 1868-1925;

from which

The West Spanish Peak, bears N. 69° 51' W.
The East Spanish Peak, bears N. 67° 54' W.
Mound, bears N. 51° 09' W.
Point of bluff, bears N. 20° 11' W.
Point of bluff, bears N. 2° 30' E.
Hay stack mound, bears N. 51° 32' E.
Hill, Sierra Grande, bears S. 28° 15' W.
Mound, bears S. 49° 37' W.
Mound, bears S. 56° 11' W.
Mound, bears S. 57° 45' W.
Hill, bears S. 61° 50' W.
N. point of high mesa at Fisher Peak, bears N. 81° 02' W.
N. point of butte, bears N. 65° 55' E.
S. point of butte, bears S. 83° 54' E.

The first eleven bearings check Darling's record very closely, especially if deflections were made from the true boundary as an E. and W. line.

Land, high plateau N. of breaks to the Cimarron Valley.
Soil, sandy loam, 2nd and 3rd rate.
No timber.

THE DARLING LINE, 36TH MILE

REESTABLISHMENT

S. 89° 37' W., on a reestablishment of the 36th mile.
Across nearly level plateau, N. of the Cimarron Valley.

3.61 The Carpenter 297th Mi. Cor. bears North, 3.02 chs. dist., an iron post, firmly set; I remove this monument.

Chains

THE DARLING LINE, 36TH MILE

60.50 Small house, bears N. about 60 lks. dist.

80.08 The proportional point; 36th Mi. Cor. destroyed (Carpenter 297th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 36, 1868-1925.

Land, high, level plateau N., of breaks to the Cimarron Valley

Soil, sandy loam; 2nd rate.

No timber.

THE DARLING LINE, 37TH MILE

REESTABLISHMENT

S. 89° 37' W., on a reestablishment of the 37th mile

Descend gradually on SW. slope

2.00 Enter oak brush, bears N. and S.

15.31 The closing cor. of secs. 23 and 24, T. 32 N., R. 30 E., N.M.P.M. Mer., New Mexico, bears South, 8 lks. dist.; a sandstone, 24x10x10 ins., above ground, firmly set in mound of stone, mkd. 5 grooves on E., one groove on W., and NM CC on S. face, thence along S. slope.

24.64 The Carpenter 296th Mi. Cor. bears North, 3.31 chs. dist.; an iron post, firmly set in ground and mound of stone, I remove this monument.

29.00 Thence across nearly level land.

54.00 Elevation 5880 ft.; begin gradual descent over SW. slope.

65.40 Rim rock, 25 ft. high, bears N. and S.; descend 330 ft. over brushy, rocky SW. slope.

73.00 Trail, bears N. 30° E. and S. 30° W.

79.50 Base of abrupt descent, bears NW and S.; enter valley of Largo Canon; leave undergrowth.

80.08 Darling's 37th Mi. Cor.; a sandstone, 24x10x8 ins., firmly set in mound of stone, mkd. C on N., NM on S., 37 M on E., and 1868 on W. face; a sandstone, 9x9x5 ins., mkd. 37 M, 10 ins. below the surface.

THE DARLING LINE, 37TH MILE

In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 37, 1868-1925, and build a mound of stone and earth around the monument.
Land, 65.00 chs. high broken plateau, 15.00 chs. canon wall.
No timber.

THE DARLING LINE, 38TH MILE

RETRACEMENT

Beginning at the 38th Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, Nov. 7, 1927.
East, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.51 N. 0.8 lks. to the parallel; thence the 37th Mi. Cor. bears N. 28 lks. dist.; on this determination the true line bears S. 89° 48' W.

REESTABLISHMENT

Thence S. 89° 48' W., on a reestablishment of the 38th mile.
In valley of Canon de Largo.

1.50 Arroyo, course SW.

18.30 Arroyo, course S. about 1½ chs. to Largo Canon Creek, which drains SE. to the Cimarron River; thence along N. side of creek in valley.

23.44 The Carpenter 295th Mi. Cor. bears North, 3.63 chs. dist.; an iron post, firmly set; I remove this monument.

29.50 Base of small spur, bears NE. and SW.; ascend SE. slope; enter scattering scrub timber and undergrowth.

35.00 Small spur, slopes S.; descend SW. slope.

37.66 Stone fence, bears N. and S.

38.80 Largo Canon Creek, water in holes and running stream 5 lks. wide, sandy and stony bottom, course S. 20° E., elevation 5500 ft.; ascend along brushy N. slope S. of creek.

Chains

THE DARLING LINE, 38TH MILE

79.51 Darling's 38th Mi. Cor.: a sandstone, 24x8x6 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 38 on E., and 08 on W. face; a sandstone, 10x4x2 ins., mkd. 38, deposited under the mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 38, 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 4 ins. diam., bears N. 28¼ W., 37 lks. dist., mkd. COLO 38 M BT.

A cedar, 6 ins. diam., bears S. 12 E., 78 lks. dist., mkd. NM 38 M BT.

The corner stands on brushy N. slope, 3.00 chs. S. of Largo Canon Creek.

C O L O R A D

LAS ANIMAS COUNTY

7 8 9 10 11 12

18 17 16 15 14 13

38 S 89° 48' W 37 S 89° 37' W 36 S 89° 37' W 35 S 89° 37' W 34 S 89° 37' W 33 S 8

79.51 80.08 80.08 80.08

+44.00 +76.00

22 23 24 19 20

Hardesty Butte

Largo Canon Creek

T.32 N., R.30E. T.32 N., R.31E.

5650 5750 5850 5450

UNION COUNTY

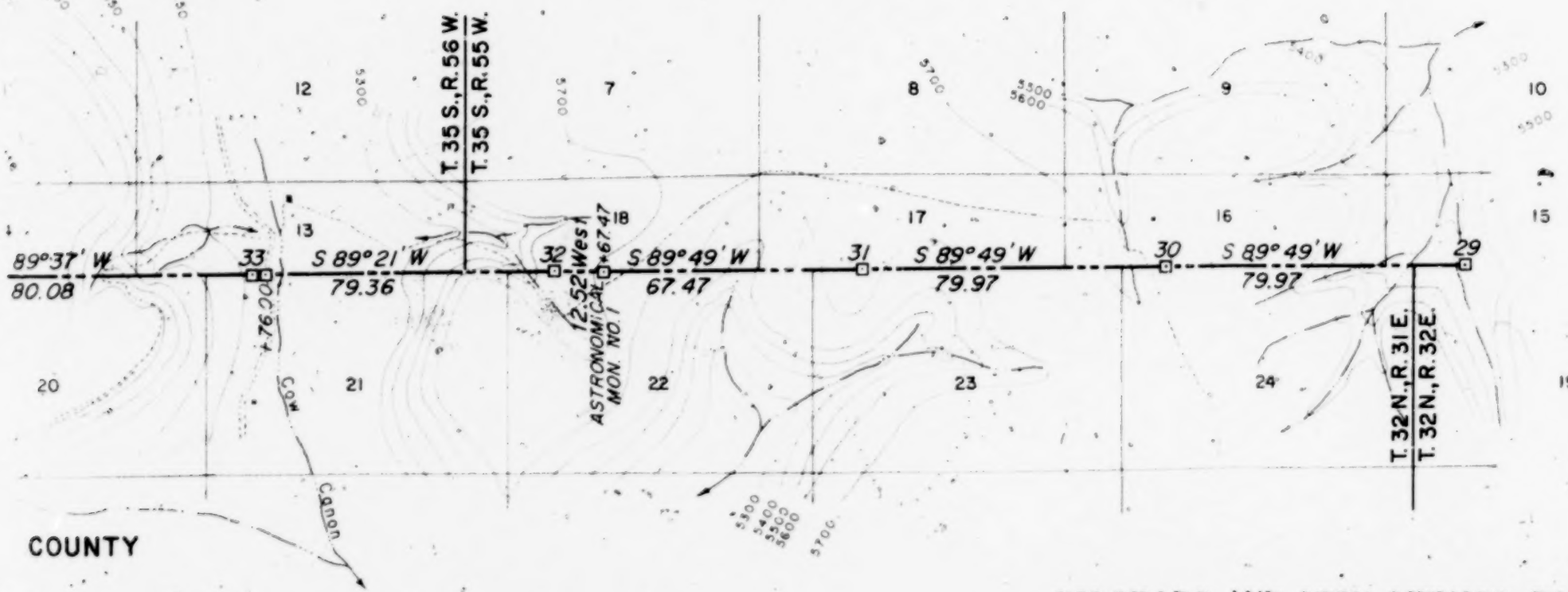
N E W M E X I

SCALE

40 Chains to the inch

R A D O

MAS COUNTY



COUNTY

E X I C O

SCALE

40 chains to the inch

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D. Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 39

to

MILE CORNER No. 45

Chains

THE DARLING LINE, 39TH MILE

RETRACEMENT

Beginning at the 41st Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

59.83 Altitude observation on the sun for azimuth, Oct. 27, 1927.

80.00 N. 0.8 lks. to the parallel; the 40th Mi. Cor. has become obliterated.

160.00 N. 3.0 lks. to the parallel; the 39th Mi. Cor. has become obliterated.

238.83 N. 6.8 lks. to the parallel; thence the 38th Mi. Cor. bears N. 2.922 chs. dist.; on this determination the true line bears S. 89° 18' W.

REESTABLISHMENT

Thence S. 89° 18' W., on a reestablishment of the 39th mile.

Ascend along N. slope S. of creek, through scattering scrub timber and undergrowth.

7.60 Thence along S. bank of creek.

11.00 Creek bears away from line, continue along broken N. slope.

24.83 The witness corner for the Carpenter 294th Mi. Cor. bears North 2.87 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

30.30 Small spur slopes N.

32.70 Deep gulch, course N. 25° E.; ascend 350 ft. over broken, brushy NE. slope.

62.50 Rim rock 30 ft. high, bears N. 47° W. and S. 61° E.; begin gentle ascent of mesa.

64.50 Top of ascent; begin gentle descent.

68.60 Head of drain, course N. 10° W.; ascend gentle E. slope.

79.62 The proportional point; unable to identify Darling's 39th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set in a concrete base, 18 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 39, 1868-1925, and build a mound of stone and earth around the monument;

from which

THE DARLING LINE, 39TH MILE

A pinon, 8 ins. diam., bears N. 56½ W., 70 lks. dist., mkd. COLO 39 M BT.

A cedar, 5 ins. diam., bears S. 20¼ W., 55 lks. dist., mkd. NM 39 M BT.

Corner stands on highest point of narrow mesa; elevation 5987 ft.

Land, rough mountainous.

Soil, sandy and stony; 4th rate.

Timber, scattering scrub cedar and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 40TH MILE

REESTABLISHMENT

S. 89 18' W., on a reestablishment of the 40th mile.

On level mesa top, through dense scrub timber and undergrowth.

2.40 Begin descent of W. slope.

8.20 Bed of small canon, course N. 10 E.; ascend E. slope.

20.00 Top of ascent; thence over nearly level mesa.

25.16 The Carpenter 293rd Mi. Cor. bears North, 4.71 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

Ascend very gradually.

30.00 Top of ascent; elevation 6020 ft.; begin gradual descent.

48.90 Rim rock 30 ft. high, bears N. and S.; descend 280 ft. over brushy W. slope; leave dense scrub timber, enter scattering timber.

56.00 Base of abrupt descent, bears N. and S.; enter valley, leave scattering timber and undergrowth.

64.50 Arroyo in canon, course N. 30 E.; elevation 5710 ft.; ascend NE. slope on S. side of main arroyo in Canon de Largo.

74.20 Enter scattering scrub timber and undergrowth; ascend steeper NE. slope.

79.62 The proportional point; 40th Mi. Cor. destroyed (Carpenter 293rd Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins.

Chains

THE DARLING LINE, 40TH MILE

in the ground, with tablet seated in the top marked Mile Corner No. 40, 1868-1925;

from which

A pinon, 18 ins. diam., bears S. 84 E., 58 lks. dist., mkd. X 40 M BT.

Land, 60.00 chs. rough mountainous, 20.00 valley.

Soil, sandy and stony; 3rd and 4th rate.

Timber, scrub cedar and pinon; undergrowth, oak brush.

THE DARLING LINE, 41ST MILE

REESTABLISHMENT

S. 89 18' W., on a reestablishment of the 41st mile.

Ascend abruptly 220 ft. over brushy NE. slope.

9.21 The Carpenter 292.2 Mi. Cor. bears North, 5.36 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument.

21.90 Point of mesa on rim rock, which bears S. 20 W. and S. 70 E.; descend 230 ft. over brushy NW. slope, enter very scattering timber.

36.90 Arroyo in Canon de Largo, course N. 60 E.; ascend SE. slope over point of spur; elevation 5750 ft.

45.50 Spur slopes S.; descend SW. slope.

48.60 Arroyo in Canon de Largo, course S. 30 E.; ascend 280 ft. over brushy NE. slope.

61.20 Rim rock, bears N. 10 W. and S. 10 E.

62.00 Begin gradual descent.

73.20 Head of gulch, course N. 20 E.; ascend E. slope.

79.62 Darling's 41st Mi. Cor.; a sandstone, 26x7x6 ins., firmly set in mound of stone, mkd. C on N., NM on S., 41 M on E., and 68 on W. face; a sandstone, 12x4x3 ins., mkd. 41 M deposited under the mound of stone;

from which

A pinon, 14 ins. diam., bears N. 80 W., 18 lks. dist., no marks.

In place of stone

THE DARLING LINE, 41st MILE

Construct a concrete monument, in a form 8x14x36 ins., set in a concrete base on sandstone ledge, with tablet seated in the top marked Mile Corner No. 41, 1868-1925, and build a mound of stone around the monument

from which

A pinon, 5 ins. diam., bears N. 6° E., 26 lks. dist., mkd. COLO 41 M BT.

A pinon, 8 ins. diam., bears S. 38½° W., 50 lks. dist., mkd. NM 41 M BT.

Land, mountainous.

Soil, sandy and stony; 4th rate.

Timber, scattering scrub cedar and pinon; undergrowth, oak brush.

THE DARLING LINE, 42ND MILE

RETRACEMENT

Beginning at the 43rd Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent

80.00 N. 0.8 lks. to the parallel; the 42nd Mi. Cor. has become obliterated.

159.06 N. 3.0 lks. to the parallel; thence the 41st Mi. Cor. bears N. 1,238 chs. dist.; on this determination the true line bears S. 89° 33' W.

REESTABLISHMENT

Thence S. 89° 33' W., on a reestablishment of the 42nd mile.

Ascend gradually, through dense scrub timber and undergrowth.

[illegible] Top of ascent, thence cross open park on nearly level mesa.

[illegible]00 The closing cor. of Tps. 32 N., Rs. 29 and 30 E., NM Prin. Mer., New Mexico, bears N. 27 lks. dist.; a sandstone, 16x10x6 ins., firmly set in a mound of stone, mkd. CC AD 73 on S. face; fence S. from corner.

Leave park, enter dense timber and undergrowth.

[illegible]99 The Carpenter 291st Mi. Cor. bears North, 6.27 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

Descend NW. slope.

Chains

THE DARLING LINE, 42ND MILE

33.00 Small canon, near head, course NE.; ascend SE. slope.

50.00 Leave dense timber, enter scattering timber in park on mesa.

52.85 Wood road, bears N. 43° E. and S. 43° W.

54.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 in in the ground, with tablet seated in the top marked Mile Corn No. 41 + 54 Chs., 1868-1925, and build a mound of stone an earth around the monument;

from which

A pinon, 7 ins. diam., bears N. 29° E., 4.27 chs. dist., mkd. W COLO BT.

A pinon, 14 ins. diam., bears S. 51½° E., 2.34 chs. dist., mkd. W NM BT.

Top of ascent; elevation 6134 ft.; begin gradual descent.

67.50 Rim of canon, bears N. 70° E. and SW.; descend 120 ft. over broke brushy NW. slope.

79.53 The proportional point; unable to identify Darling's 42nd Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 22 in in the ground, with tablet seated in the top marked Mile Corn No. 42, 1868-1925, and build a mound of stone and earth aroun the monument;

from which

A large sandstone boulder bears S., 12 lks. dist., with a dead ceda tree W. of stone.

A cedar, 7 ins. diam., bears N. 58½° E., 63 lks. dist., mkd. COL 42 M BT.

A cedar, 15 ins. diam., bears S. 49½° W., 59 lks. dist., mkd. NM 42 M BT.

Land, high mesa, cut with small canons.

Soil, sandy clay and stony; 3rd and 4th rate.

Timber, scrub cedar and pinon; undergrowth, oak brush.

THE DARLING LINE, 43RD MILE

REESTABLISHMENT

S. 89° 33' W., on a reestablishment of the 43rd mile.

Along brushy N. slope, through scattering scrub cedar.

COLORADO AND NEW MEXICO BOUNDARY

CHAINS

THE DARLING LINE, 43RD MILE

7.00 Arroyo in Canon de Largo, course N. 75 E.; elevation 5970 ft.; ascend SE. slope.

13.50 Rim of canon, bears NE. and S. 60 W.; leave scrub timber.

16.20 Point of spur, slopes S. from N. rim of canon.

19.00 Rim of canon, bears NW. and S. 60 E.; descend SW. slope.

22.50 Ascend SE. slope.

25.08 The Carpenter 290th Mi. Cor. bears North, 6.56 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

27.00 Rim of canon, bears NE. and SW.; thence along N. rim.

46.00 Rim of canon, bears NW. and SE.; descend SW. slope.

47.10 Canon de Largo, course S. 20 E.; elevation 6070 ft.; ascend over brushy NE. slope.

48.70 Small gulch, course NE.

57.80 Rim of canon, bears N. 20 W. and SE.; thence ascend gradually on nearly level mesa.

79.53 Darling's 43rd Mi. Cor.: a sandstone, 8x5x3 ins., mkd. 43, deposited 14 ins. below the surface and small mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set in a concrete base 12 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 43, 1868-1925, and build a mound of stone around the monument.

from which

A pit, 18x18x12 ins., bears West, 10 lks. dist.

A pit, 18x18x4 ins., bears East, 10 lks. dist.

Land, mountainous.

Soil, sandy and stony; 4th rate.

Timber, scattering scrub cedar; undergrowth, oak brush.

THE DARLING LINE, 44TH MILE

RETRACEMENT

Beginning at the 44th Mi. Cor., as identified and hereinafter described,

Chains

THE DARLING LINE, 44TH MILE

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

54.47 Altitude observation on the sun for azimuth, Oct. 25, 1927.

79.65 N. 0.8 lks. to the parallel; thence the 45rd Mi. Cor. bears N. 40 lks. dist.; on this determination the true line bears S. 89° 42′ W.

REESTABLISHMENT

—— Thence S. 89° 42′ W., on a reestablishment of the 44th mile. Ascend gradually, over prairie mesa.

7.20 Arroyo, course N. 20° E.

25.41 The Carpenter 289th Mi. Cor. bears North, 6.89 chs. dist.; an iron post, firmly set; I remove this monument.

30.00 Base of hill, bears NW. and SE.; ascend 150 ft. over NE. slope enter scattering brush.

38.30 Drain, course N. 10° E.

43.60 Spur, slopes N.; elevation 6410 ft.; descend NW. slope.

48.00 Thence across nearly level bench S. of knoll.

54.00 Begin descent from bench, over West slope.

67.40 Arroyo, near head of Largo Canon Creek, course N. 10° E.; ascend 130 ft. over East slope to corner.

79.65 Darling's 44th Mi. Cor.; a basalt stone, 15x8x6 ins., firmly set; mkd. C on N., NM on S., 44 M on E., and 68 on W. face; a basalt stone, 10x7x3 ins., mkd. 44 M, 14 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 44, 1868-1925, and build a mound of stone and earth around the monument;

from which

Pits, 18x18x12 ins., bear E. and W. of cor., 10 lks. dist.

Land, 30.00 chs. nearly level prairie mesa; 50.00 chs. rolling.

Soil, sandy loam and stony; 3rd rate.

No timber.

Chains.

THE DARLING LINE, 45TH MILE

RETRACEMENT

Beginning at the 45th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

59.00 Altitude observation on the sun for azimuth, Oct. 25, 1927.

80.21 N. 0.8 lks. to the parallel; thence the 44th Mi. Cor. bears S. 15.1 lks. dist.; on this determination the true line bears N. 89° 54′ W.

REESTABLISHMENT

Thence N. 89° 54′ W., on a reestablishment of the 45th mile.
Ascend E slope, through scattering oak brush.

16.90 Top of divide between the Cimarron and Las Animas Rivers, bears N. 20° E. and S.; elevation 6550 ft.; thence along N. slope.

25.36 The Carpenter 288th Mi. Cor. bears North, 7.10 chs. dist., an iron post, firmly set in ground and mound of stone; I remove this monument.

46.50 Head of drain, course N. 10° E.; ascend gentle NE. slope.

60.00 Spur slopes N.; descend W. slope; enter thick oak brush.

80.21 Darling's 45th Mi. Cor.; a basalt stone, 28x11x6 ins., firmly set in crevice of large basalt boulder, mkd. C on N., NM on S., 45 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument, 16x12x12 ins. above boulder, with concrete base in crevice of boulder, with tablet seated in top of monument marked Mile Corner No. 45, 1868-1925.

Land, rolling mountainous.

Soil, sandy clay and stony; 4th rate.

No timber.

C O L O R A D O

LAS ANIMAS COUNTY

T. 35 S., R. 58 W.

T. 35 S., R. 57 W.

12 7 8 9 10. 11

13 18 17 16 15 14

45 N 89°54' W 80.21 — 44 S 89°42' W 79.65 — 43 S 89°33' W 79.53 — 42 S 89°33' W 79.53 — 41 S 89°18' W 79.62 — 40 S 8

54.00

21 22 23 24 19

T. 32 N., R. 29 E.

T. 32 N., R. 30 E.

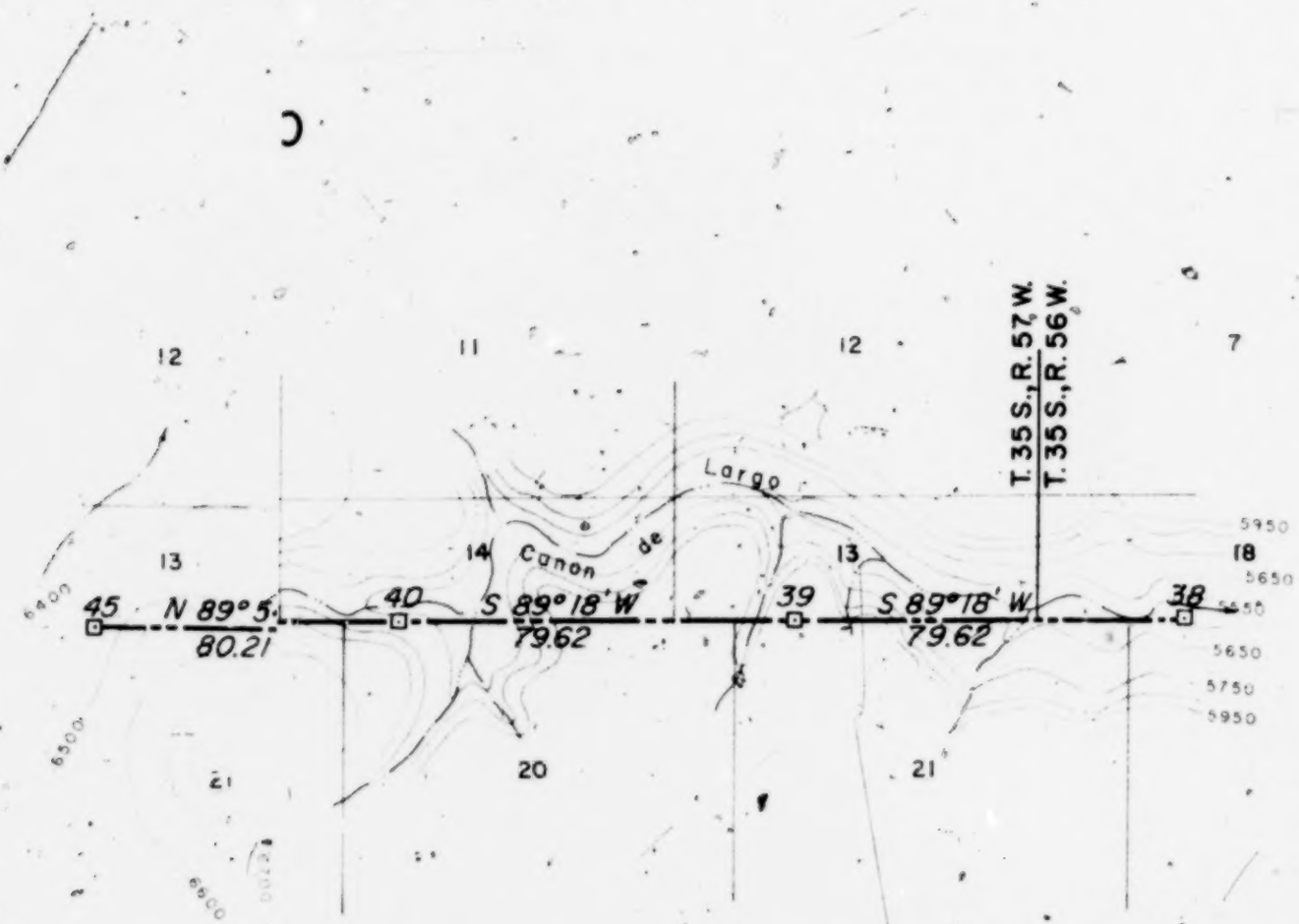
UNION COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925.

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 46

to

MILE CORNER No. 52

Chains

THE DARLING LINE, 46TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

32.76 Altitude observation on the sun for azimuth, Oct. 13, 1927.

80.00 N. 0.8 lks. to the parallel; the 46th Mi. Cor. has become obliterated.

159.46 N. 3.0 lks. to the parallel; thence the 47th Mi. Cor. bears S. 1.752 chs. dist.; on this determination the true line bears S. 89° 22′ W.

REESTABLISHMENT

Thence from the 45th Mi. Cor. S. 89° 22′ W., on a reestablishment of the 46th mile.

Descend brushy W. slope.

9.00 Base of descent; enter high valley; leave brush.

16.30 Junction of arroyos, course from N. 60° E. and N. to N. 20° E.; ascend gentle E. slope in high valley.

30.00 Construct a concrete monument, in a form 16x24x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 45 + 30.00 Chs., 1868-1925; elevation 6360.486 ft.

30.56 Wire fence, bears N. 24¼° E. and S. 24¼° W.

31.33 Highway from Folsom, N. M., to Branson, Colo., bears N. 24¼° E. and S. 24¼° W.

31.66 Wire fence, bears N. 24¼° E. and S. 24¼° W.

32.90 The Colorado and Southern Ry., bears N. 24° 16′ E. and S. 24° 16′ W.

33.78 Wire fence, bears N. 24¼° E. and S. 24¼° W.

34.91 The Carpenter 287th Mi. Cor. bears North, 7.33 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

35.15 Colorado and Southern Ry. Bench Mark No. 264, elevation 6381.38 ft., bears S., 4.59 chs. dist.

Ascend gentle SE. slope through oak brush.

56.05 Wire fence, bears N. and S.

79.74 The proportional point; unable to identify Darling's 46th Mi. Cor.

Chains

THE DARLING LINE, 46TH MILE

Construct a concrete monument, in a form 8x14x36 ins., set in concrete base 18 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 46, 1868-1925, and build a mound of stone around the monument.

Land, rolling mountainous.

Soil, stony clay; 3rd and 4th rate.

No timber.

THE DARLING LINE, 47TH MILE

REESTABLISHMENT

S. 89° 22′ W., on a reestablishment of the 47th-mile.

Ascend 300 ft. over broken, brushy SE. slope.

32.90 Top of basalt rim rock, 50 ft. high, bears N. 67° E. and S. 59° W.; the eastern point of the Raton Mountains; elevation 6965 ft.; thence ascend gradual E. slope on mesa.

34.63 The Carpenter 286th Mi. Cor. bears North, 8.21 chs. dist.; an iron post, firmly set; I remove this monument.

Top of ascent; elevation 6975 ft.; leave oak brush.

49.00 Begin gradual descent.

58.00 Enter oak brush.

61.60 Head of drain, course N. 15° E.; ascend brushy E. slope.

67.00 Leave oak brush.

79.74 Darling's 47th Mi. Cor.; a basalt stone, 16x8x5 ins., loosely set in mound of stone, mkd. C on N., NM on S., 47 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 47 1868-1925, and build a mound of stone and earth around the monument;

from which

Pits, 18x18x12 ins., bear E. and W. of cor., 10 lks. dist.

East Spanish Peak, bears N. 63° 09′ W.

West Spanish Peak, bears N. 66° 17′ W.

Chains

THE DARLING LINE, 47TH MILE

Capulin Peak bears S. 14° 53' W.
Land, 50.00-chs. mountainous, 30.00 chs. nearly level mesa.
Soil, stony clay; 3rd and 4th rate.
No timber.

THE DARLING LINE, 48TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.14 N. 0.8 lks. dist. to the parallel; thence the 48th Mi. Cor. bears S. 79.7 lks. dist.; altitude observation on the sun for azimuth, Oct. 14, 1927; on this determination the true line bears S. 89° 26' W.

REESTABLISHMENT

Thence from the 47th Mi. Cor. S. 89° 26' W., on a reestablishment of the 48th mile.
Ascend gradual E. slope on mesa.

7.50 Top of ascent; divide between the Cimarron and Las Animas Rivers, bears NW. and SE.; elevation 7030 ft.; begin gradual descent.

14.70 Rim of canon near head, bears N. turning to NW. and S. 15 E.; descend 80 ft. over brushy SW. slope.

19.30 Head of canon, course S. 20° E.; thence along brushy S. slope in small canon.

35.07 The Carpenter 2 5th Mi. Cor. bears North, 8.98 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

39.40 Rim of canon, bears NE. and SW.; begin gradual ascent on mesa.

47.00 Top of ascent; divide between the Cimarron and Las Animas Rivers, bears NE. and SW.; elevation 7060 ft.; descend gradually on mesa.

51.40 Rim of mesa, bears N. 20° E. turning to N. 70° E. and S. 69° W.; descend 200 ft. over steep brushy NW. slope.

Chains

THE DARLING LINE, 48TH MILE

62.00 Base of abrupt descent, bears N. 60° E. and S. 60° W.; enter scattering scrub timber; thence descend gradually on bench.

80.14 Darling's 48th Mi. Cor.; a basalt stone, 20x10x8 ins., loosely set in mound of stone, mkd. C on N., NM on S., 48 M on E., and 68 on W. face; a basalt stone, 10x6x3 ins., mkd. 48 M, deposited under the mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 48, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 12 ins. diam., bears N. 27° E., 3.35 chs. dist., mkd. COLO 48 M BT.

A pine, 7 ins. diam., bears S. 38½° W., 3.64 chs. dist., mkd. NM 48 M BT.

Land, mountainous.

Soil, sandy clay and stony; 4th rate.

Timber, scattering scrub cedar and pine; undergrowth, oak brush.

THE DARLING LINE, 49TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, Oct. 14, 1927.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 The 49th Mi. Cor. was not established by Darling; point falls on cliff; continue distance.

[illegible]0.00 N. 3.0 lks. to the parallel; the 50th Mi. Cor. has become obliterated.

[illegible]3.68 N. 6.8 lks. to the parallel; thence the 51st Mi. Cor. bears S. 1.841 chs. dist.; on this determination the true line bears S. 89° 33' W.

REESTABLISHMENT

Thence from the 48th Mi. Cor. S. 89° 33' W., on a reestablishment of the 49th mile.

Along brushy N. slope, through scattering scrub timber.

Chains THE DARLING LINE, 49TH MILE

20.00 Begin descent of NW. slope.

34.67 The Carpenter 284th Mi. Cor. bears North, 9.65 chs. dist.; an iron post, firmly set in mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

44.65 Trail and pipe line, bears N. and S.

45.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 48 + 45 Chs., 1868-1925, and build a mound of stone and earth around the monument;

from which

A pinon, 12 ins. diam., bears N. 54¼° W., 1.10 chs. dist., mkd. WP COLO BT.

A pinon, 5 ins. diam., bears S. 30¾° W., 83 lks. dist., mkd. WP NM BT.

47.00 Small canon, course N. 30° W. turning to N.; leave scattering timber; ascend 380 ft. over steep brushy NE. slope.

64.30 Top of abrupt ascent; cross nearly level bench; enter timber, bears NW. and SE.

70.00 Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 48 + 70 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A pine, bears N. 50½° E., 97 lks. dist., mkd. WP COLO BT.

A pine, bears S. 22½° E., 54 lks. dist., mkd. WP NM BT.

Ascend 290 ft. over steep brushy NE. slope and rock wall.

77.70 Top of basalt rim rock, 80 ft. high, bears SW. and S. 53° E.; elevation 7190 ft.; leave timber at foot of wall.

79.56 The proportional point, the 49th Mi. Cor. was not established by Darling; point falls on rim rock; I did not establish this corner.

Land, rough mountainous.

Soil, stony clay; 4th rate.

Timber, scattering scrub cedar and pinon, and dense scrub pine undergrowth, dense oak and service brush.

Chains

THE DARLING LINE, 50TH MILE

REESTABLISHMENT

S. 89° 33′ W., on a reestablishment of the 50th mile.
Ascend NE. slope along rim rock, through oak and service brush.

6.70 Top of rim rock, bears NW. and SE.; ascend NE. slope on mesa; enter scattering scrub timber.

15.00 Spur, slopes N. 20° W.; descend 230 ft. over W. slope.

20.91 The Carpenter 283.175 Mi. Cor. bears North, 10.19 chs. dist.; an iron post, firmly set in mound of stone; I remove this monument and obliterate the marks on the bearing tree.

27.60 Small canon, course N. 10° E. turning to N.; ascend 320 ft. over steep E. slope.

43.00 Top of ascent on spur, sloping N.; elevation 7362 ft.
Construct a concrete monument, in a form 8x14x36 ins., set in concrete base 8 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 49 + 43 Chs., 1868-1925, and build a mound of stone around the monument;
from which
A pine, 5 ins. diam., bears N. 52¾° E., 1.87 chs. dist., mkd. WP COLO BT.
A pine, 7 ins. diam., bears S. 78¾° E., 74 lks. dist., mkd. WP NM BT.
Saddle Rock, bears N. 44½° E., 45 chs. dist.
Water tank at Branson, Colo., bears N. 74° 09′ E.
Chimney on High School at Branson, Colo., bears N. 64° 57′ E.
Descend on spur.

44.50 Top of rim rock, 20 ft. high, bears SW. and NE. turning to E.; descend 140 ft. over steep brushy NW. slope.

51.00 Base of abrupt descent; thence along N. slope at N. edge of bench.

59.56 The proportional point; unable to identify Darling's 50th Mi. Cor.
Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 50, 1868-1925, and build a mound of stone and earth around the monument;
from which
A pine, 5 ins. diam., bears N. 57° W., 2.72 chs. dist., mkd. COLO 50M BT.

Chains

THE DARLING LINE, 50TH MILE

A pine, 8 ins. diam., bears S. 40° E., 1.23 chs. dist., mkd. NM 50 M BT.

Land, rough mountainous.

Soil, stony loam, 4th rate.

Timber, scattering scrub pinon and pine; undergrowth, dense oak and service brush.

THE DARLING LINE, 51ST MILE

REESTABLISHMENT

S. 89° 33' W., on a reestablishment of the 51st mile.

Descend gradually on bench, through dense oak brush.

2.00 Descend 750 ft. over broken, brushy NW. slope for balance of mile; scattering scrub timber on slope.

12.36 Spring, bears N., 1.80 chs. dist.; good water.

34.57 The Carpenter 282nd Mi. Cor. bears North, 10.76 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

54.60 Gulch, course N. 5° W. turning to N. 30° W.

65.00 Spur, slopes N.

79.56 Darling's 51st Mi. Cor. position, as identified by C. J. Ortiz, who was born Aug. 27, 1872, and has been a resident near this corner for 16 years. The position falls at E. bank of graded road, leading to the Ortiz house, .5 chs. SW. In grading the road in 1927 the workmen unearthed and graded out this corner, but preserved the true position and replaced the stone after grading. The stone is a basalt, 20x8x6 ins., mkd. C, NM, 51 M and 68 on opposite faces. I find a deposit basalt stone, 7x5x3 ins., mkd. 51 M. Mr. Ortiz also states this corner was first shown to him by the County Surveyor of Union County, New Mexico, in 1913.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 51, 1868-1925;

from which

A pine, bears S. 24½° W., 90 lks. dist., mkd. NM 51 M BT.

THE DARLING LINE, 51ST MILE

A pine, bears N. 22½ E., 1.72 chs. dist., mkd. COLO 51 M BT
The SE. corner of the C. J. Ortiz residence bears S. 40 21 W., 5.05 chs. dist.

Land, mountainous.

Soil, stony loam: 4th rate.

Timber, scattering scrub cedar and pinon.

THE DARLING LINE, 52ND MILE

RETRACEMENT

Altitude observation on the sun for azimuth, June 21, 1928.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

.57 N. 0.8 lks. to the parallel; thence the 52nd Mi. Cor. bears S. 90 lks. dist.; on this determination the true line bears S. 89 21' W.

REESTABLISHMENT

Thence from the 51st Mi. Cor. S. 89 21' W., on a reestablishment of the 52nd mile.

Over broken land, through scattering oak brush.

.05 Road, bears N. and S., turning to N. 30 E.

.15 Arroyo, course N.

.20 Small spur, slopes NE.

.80 Arroyo, course NE.; enter scattering timber; ascend 120 ft. over NE. slope.

.69 The Carpenter 281st Mi. Cor. bears North, 11.39 chs. dist.; an iron post, firmly set in mound of stone; I remove this monument and obliterate the marks on the bearing tree.

.90 Spur, slopes N.; elevation 6490 ft.; descend 80 ft. over NW. slope, through dense timber.

.10 Descend 30 ft. over SW. slope.

.68 Darling's 52nd Mi. Cor.; a basalt stone, 8x10x16 ins., firmly set in mound of stone, mkd. C on N., NM on S., 52 on E., and 68 on W. face.

Briefs.

Chains

THE DARLING LINE, 52ND MILE

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24
in the ground, with tablet seated in the top marked Mile C
No. 52, 1868-1925, and build a mound of stone around the m
ment;

from which

A pinon, 6 ins. diam., bears N. 19° 15' W., 57 lks. dist.,
COLO 52 M BT.

A pinon, 7 ins. diam., bears S. 59° 30' E., 80 lks. dist., mkd.
52 M BT.

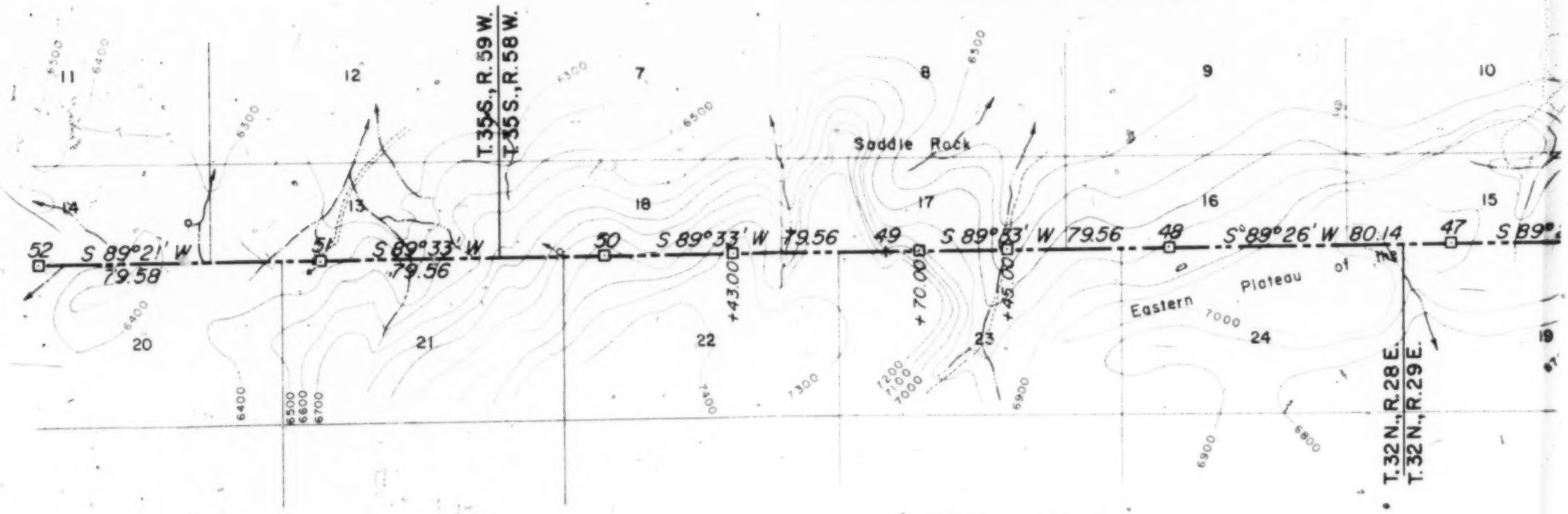
Land, broken.

Soil, sandy loam and stony; 2nd and 3rd rate.

Timber, 35.00 chs. scattering cedar and pinon, 29.00 chs. de
undergrowth, oak brush.

C O L O R A D O

LAS ANIMAS COUNTY



UNION COUNTY

N E W M E X I C O

SCALE

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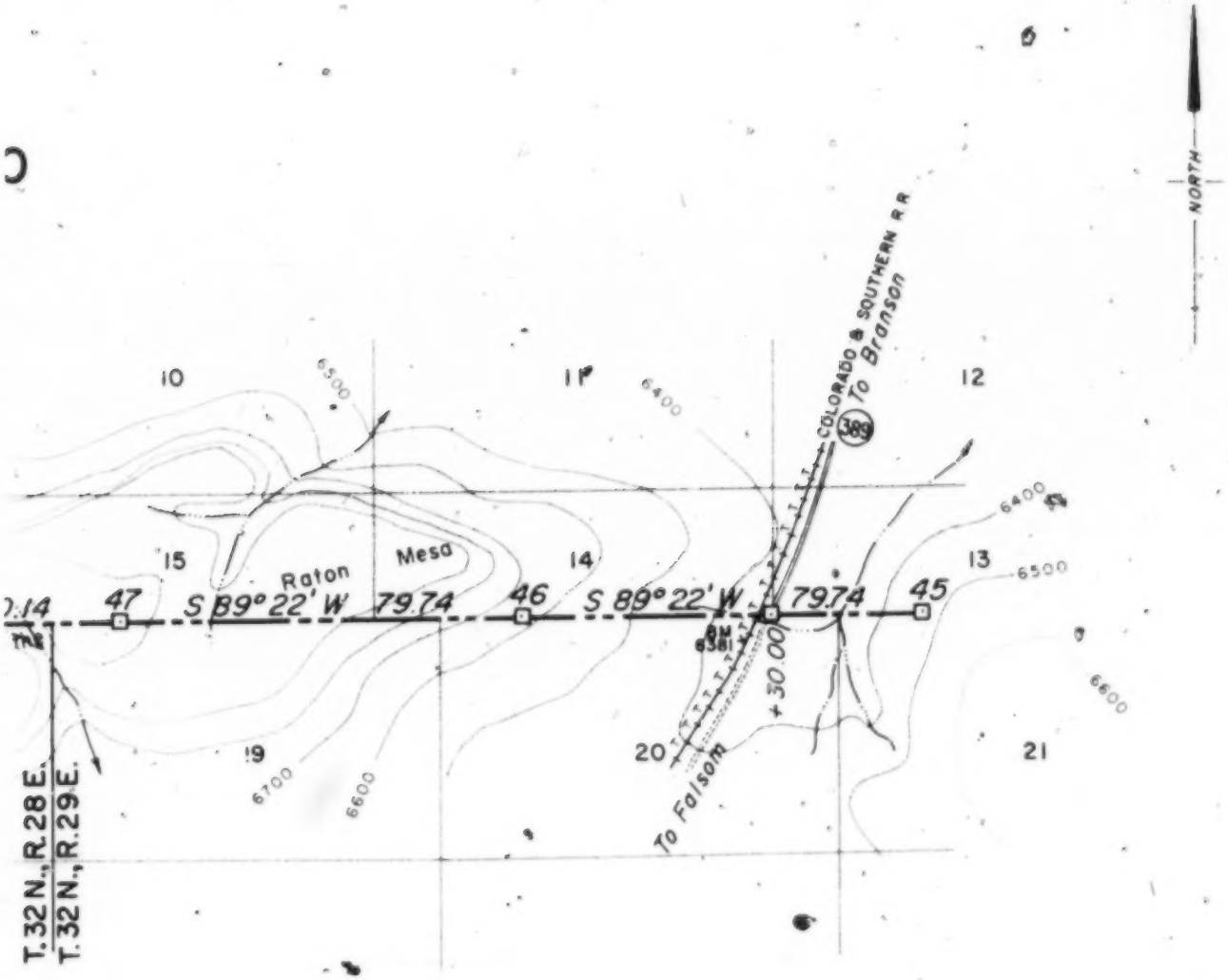
40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D. Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 53

to

MILE CORNER No. 60

Chains

THE DARLING LINE, 53RD MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 53rd Mi. Cor. has become obliterated

160.00 N. 3.0 lks. to the parallel; the 54th Mi. Cor. has become obliterated

240.18 N. 6.8 lks. to the parallel; thence the 55th Mi. Cor. bears S. 1.97 chs. dist.; altitude observation on the sun for azimuth, June 2[illegible] 1928; on this determination the true line bears S. 89° 32′ W.

REESTABLISHMENT

Thence from the 52nd Mi. Cor. S. 89° 32′ W., on a reestablishment of the 53rd mile.

Descend 20 ft. over SW. slope, through dense timber.

6.00 Descend 210 ft. over W. slope.

24.00 Leave timber, bears N. and S.

27.60 Creek, 15 lks. wide, rocky bottom, course N., elevation 6140 ft.; ascend 40 ft.

35.41 The Carpenter 280th Mi. Cor. bears North, 12.11 chs. dist.; an iron post, firmly set in mound of stone; I remove this monument and obliterate the marks on the bearing tree.

36.00 Top of low ridge, bears N. and S.; descend 30 ft.

48.00 Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 52 + 48 Chs., 1868-1925, and build a mound of stone and earth around the monument;

from which

A farm house, bears S. 11° 30′ E.

Cone Mt., bears S. 88° 30′ E.

48.80 Road, bears N. 10° W. and S. 10° E.

53.00 Arroyo, course N. 20° W.; ascend 60 ft.

71.70 Point of spur, slopes N.; descend 30 ft.

76.60 Arroyo, course N. 15° E. turning to N. 60° E.; ascend 30 ft., through scattering oak brush.

Chains

THE DARLING LINE, 53RD MILE

80.06 The proportional point; unable to identify Darling's 53rd Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 53, 1868-1925;
from which
Point of mesa, bears S. 29° 45' W.
Saddle Rock, bears N. 84° E.
Land, rolling
Soil, sandy clay and stony; 2nd and 3rd rate.
Timber, dense cedar and pinon; undergrowth, oak brush.

THE DARLING LINE, 54TH MILE

REESTABLISHMENT

S. 89° 32' W., on a reestablishment of the 54th mile.
Ascend 100 ft. over steep E. slope, through scattering oak brush.

7.00 Enter scattering timber.

7.70 Top of spur ridge, bears N. and S.; descend 80 ft.

14.70 Arroyo, course N. 30° W. turning to N. 15° W. and N.; ascend 50 ft.

19.40 Spur, slopes N.; descend 40 ft.

23.70 Arroyo, course N. 20° E.; ascend 50 ft.

29.45 The Carpenter 279.075 Mi. Cor. bears North, 12.64 chs. dist.; an iron post, firmly set in mound of shale; I remove this monument.

29.50 Spur ridge, bears N. and S.; descend 60 ft.

40.00 Arroyo, with springs, course N.; ascend 40 ft.

44.50 Spur ridge, bears N. and S.; descend 60 ft.

60.30 Arroyo, course N.; ascend 50 ft.

69.20 Spur ridge, bears N. and S.; descend 20 ft. gradually.

79.00 Enter dense timber.

80.06 The proportional point; unable to identify Darling's 54th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner

Chains THE DARLING LINE, 54TH MILE

No. 54, 1868-1925, and build a mound of stone and earth arou
the monument;
from which
A pinon, 4 ins. diam., bears N. 69° 15' W., 96 lks. dist., mk
COLO 54 M BT.
A pinon, 5 ins. diam., bears S. 11° 45' W., 31 lks. dist., mkd. N
54 M BT.
Land, rolling mountainous.
Soil, sandy and stony; 3rd rate.
Timber, scattering cedar and pinon; undergrowth, oak brush.

THE DARLING LINE, 55TH MILE

REESTABLISHMENT

S. 89° 33' W., on a reestablishment of the 55th mile.
[illegible] 30 ft. on gradual W. slope, through dense timber a
scattering undergrowth.

18.50 Descend 60 ft. over NW. slope.

23.60 Arroyo, course S. 60° W.; cross point of spur on S. slope.

26.60 Small spur, slopes SW.; descend 60 ft.

27.16 The Carpenter 278.1 Mi. Cor. bears North, 12.36 chs. dist.; an ir
post, loosely set in small mound of shale; I remove this monume

36.30 Arroyo, course NW.; ascend 60 ft.

53.60 Spur ridge, bears N. and S.; thence along top of ridge.

61.00 Spur ridge, bears N. 20° W. and S. 20° E.; descend 170 ft. ove
slope.

63.00 Leave timber and undergrowth, bears N. and S.

75.40 Creek, 10 lks. wide, gravel bottom, course N., elevation 6020 f
ascend 30 ft. on bluff on W. side of creek.

76.80 Begin gradual ascent.

80.06 Darling's 55th Mi. Cor.; a basalt stone, 6x10x10 ins., loosely set
small mound of stone, mkd. NM on S., and 68 on W. face.
In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 24 i

Chains

THE DARLING LINE, 55TH MILE

in the ground, with tablet seated in the top marked Mile Corner No. 55, 1868-1925.

Land, rolling mountainous

Soil, sandy and stony; 3rd rate.

Timber, scrub cedar and pinon; undergrowth, oak brush.

THE DARLING LINE, 56TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, June 23, 1928.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.94 N. 0.8 lks. to the parallel; thence the 56th Mi. Cor. bears S. 89.8 lks. dist.; on this determination the true line bears S. 89° 21′ W.

REESTABLISHMENT

Thence from the 55th Mi. Cor. S. 89° 21′ W., on a reestablishment of the 56th mile.

Ascend 50 ft. over gentle NE. slope, through scattering oak brush.

11.80 Small spur, slopes N.; descend 50 ft. over W. slope.

21.20 Arroyo, course N.; ascend gradual E. slope.

29.00 Top of low ridge, bears N. and S.; descend 70 ft. over W. slope.

35.23 The Carpenter 277th Mi. Cor. bears North, 12.05 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

37.40 Creek, 3 lks. wide, gravel bottom, course N.; ascend gentle E. slope; leave oak brush.

40.00 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 55 + 40 Chs., 1868-1925;

from which

A farm house, bears S. 4° 50′ W., 6.14 chs. dist.

40.52 Wagon road, bears N. 2¼° W. and S. 5¼° W.

55.00 Wagon road, mail route from Trinchera, Colo., bears N. 10° E. and S. 10° W.

Chains

THE DARLING LINE, 56TH MILE

79.94 Darling's 56th Mi. Cor.; a basalt stone, 8x6x4 ins., mkd. 56 M deposited under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 56, 1868-1925, and build a mound of stone around the monument;

from which

Saddle Rock, bears N. 86¼° E.

Point on mesa, bears S. 5½° W.

Land, rolling.

Soil, sandy and stony; 2nd and 3rd rate.

No timber.

THE DARLING LINE, 57TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 57th Mi. Cor. has become obliterated.

160.40 N. 3.0 lks. to the parallel; thence the 58th Mi. Cor. bears S. 89.1 lks. dist.; on this determination the true line bears S. 89° 41′ W.

REESTABLISHMENT

Thence from the 56th Mi. Cor. S. 89° 41′ W., on a reestablishment of the 57th mile.

Ascend gradual E. slope.

5.00 Top of spur, slopes NE.; begin gradual descent, through scattering oak brush.

27.50 Gulch, course N. 20° W.; ascend NE. slope.

31.90 Spur, slopes NE.; descend NW. slope.

35.09 The Carpenter 276th Mi. Cor. bears North, 11.82 chs. dist.; an iron post, firmly set in mound of stone; I remove this monument.

35.50 Head of small draw, course N. 70° E.; ascend NE. slope.

40.00 Begin gradual descent towards old dry lake bed; leave oak brush.

Chains

THE DARLING LINE, 57TH MILE

73.00 Bottom of lake bed; begin gradual ascent out of lake bed.

80.20 The proportional point; unable to identify the position of Darling's 57th Mi. Cor. This lake bed has been cultivated; I find the stone at the edge of the field lying loose on ground; a basalt, 13x9x8 ins., mkd. C., NM., 57 M and 68 on opposite faces.

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 57, 1868-1925, and build a mound of stone around the monument;

from which

A conical mound, bears N. 80¾° E., about 40 chs. dist.
Point of mesa, bears S. 32° W.

Land, rolling.

Soil, sandy clay and stony; 3rd rate.

No timber.

THE DARLING LINE, 58TH MILE

REESTABLISHMENT

S. 89° 41° W., on a reestablishment of the 58th mile.

Ascend gradually out of old lake bed.

5.00 Begin gradual descent to Trinchera Creek, through scattering oak brush.

33.94 The Carpenter 275th Mi. Cor. bears North, 11.15 chs. dist.: an iron post, firmly set in mound of stone; I remove this monument.

45.60 Top of small rocky ridge, bears N. and S.

77.00 Rim rock, 15 ft high, bears N. and S.; descend abruptly 80 ft.

79.30 Trinchera Creek, 15 lks. wide, gravel bottom, course N., cottonwood trees along creek, elevation 5953 ft.; ascend W. bank of creek.

80.20 True point for Darling's 58th Mi. Cor., as identified by R. L. Survant, who owns the ranch at this place. The point was also accurately located from Carpenter's Astronomical Monument No. 6; the corner was destroyed (Carpenter 275th Mi.). The Carpenter Observing Station No. 6 bears South, 1.40 chs. dist. The position falls on unstable ground near the W. bank of Trinchera Creek. I did not reestablish this corner.

Chains

THE DARLING LINE, 58TH MILE

Land, rolling.
Soil, sandy and stony; 3rd rate.
Timber, cottonwood along creek; undergrowth, oak brush.

THE DARLING LINE, 59TH MILE

RETRACEMENT

Hour angle observation Polaris for azimuth, June 23, 1928.
West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.96 N. 0.8 lks. to the parallel; thence the 59th Mi. Cor. bears S. 1.019 chs. dist.; on this determination the true line bears S. 89° 16′ W.

REESTABLISHMENT

Thence from the true point for the 58th Mi. Cor. S. 89° 16′ W., on a reestablishment of the 59th mile.
Across valley.

1.08 Irrigation canal, course N. 20° W.

1.94 Telephone line, from Trinidad, Colorado, to Amarillo, Texas, bears N. 1¾° E. and S. 1¾° W.

2.50 Construct a concrete monument, in a form 16x24x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 58 + 2.50 Chs., 1868-1925, and build a mound of stone and earth around the monument:
from which
East end of Trap Dyke bears N. 8¼° W., 2.78 chs. dist.
North end of wall E. of Trinchera Creek bears N. 61¼° E.

3.10 Mail route from Trinchera, Colo., bears N. and S.; ascend 150 ft. over brushy SE. slope; leave valley.

6.80 Irrigation canal, 20 lks. wide, course N. 42½° E.

14.80 Top of Trap Dyke, bears N. 78¼° E. and S. 75½° W., elevation 6110 ft.; thence along brushy N. slope.

21.16 The Carpenter Astronomical Monument No. 6 bears North, 10.84 chs. dist.; a sandstone, 12x12 ins. x 6 ft., firmly set in ground and mound of stone; I obliterate the marks and bury the stone.

Chains

THE DARLING LINE, 59TH MILE.

33.90 The Carpenter 274th Mi. Cor. bears North, 11.25 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

79.97 Darling's 59th Mi. Cor.; a basalt stone, 10x6x6 ins., loosely set in small mound of stone, mkd. C on N., NM on S., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 59, 1868-1925, and build a mound of stone around the monument.

Land, rolling mountainous.

Soil, sandy clay and stony; 2nd and 4th rate.

No timber.

THE DARLING LINE, 60TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.08 N. 0.8 lks. to the parallel; thence the 60th Mi. Cor. bears S. 86 lks. dist.; on this determination the true line bears S. 89° 23′ W.

REESTABLISHMENT

Thence from the 59th Mi. Cor. S. 89° 23′ W., on a reestablishment of the 60th mile.

Along brushy N. slope.

5.50 Arroyo, course N. 60° E.; ascend SE. slope.

9.98 The closing corner of Tps. 32 N., Rs. 26 and 27 E., NM Prin. Mer., New Mexico, bears North, 5.5 lks. dist.; a basalt stone, 12x8x4 ins., loosely set in a small mound of stone, mkd. with six grooves on E., six grooves on W., and CC on S. face.

34.50 The Carpenter 273rd Mi. Cor. bears North, 13.20 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument.

Top of high spur, slopes N. 20° E., elevation 6320 ft.; begin gradual descent of W. slope.

Chains THE DARLING LINE, 60TH MILE

43.50 Draw, course N.; ascend gentle E. slope.

48.00 Wagon trail, bears NE. and S.; leave oak brush; begin gradua descent over NW. slope.

80.08 Darling's 60th Mi. Cor.; a basalt stone, 18x10x8 ins., on the ground mkd. C., NM., 60, and 68 on opposite faces.

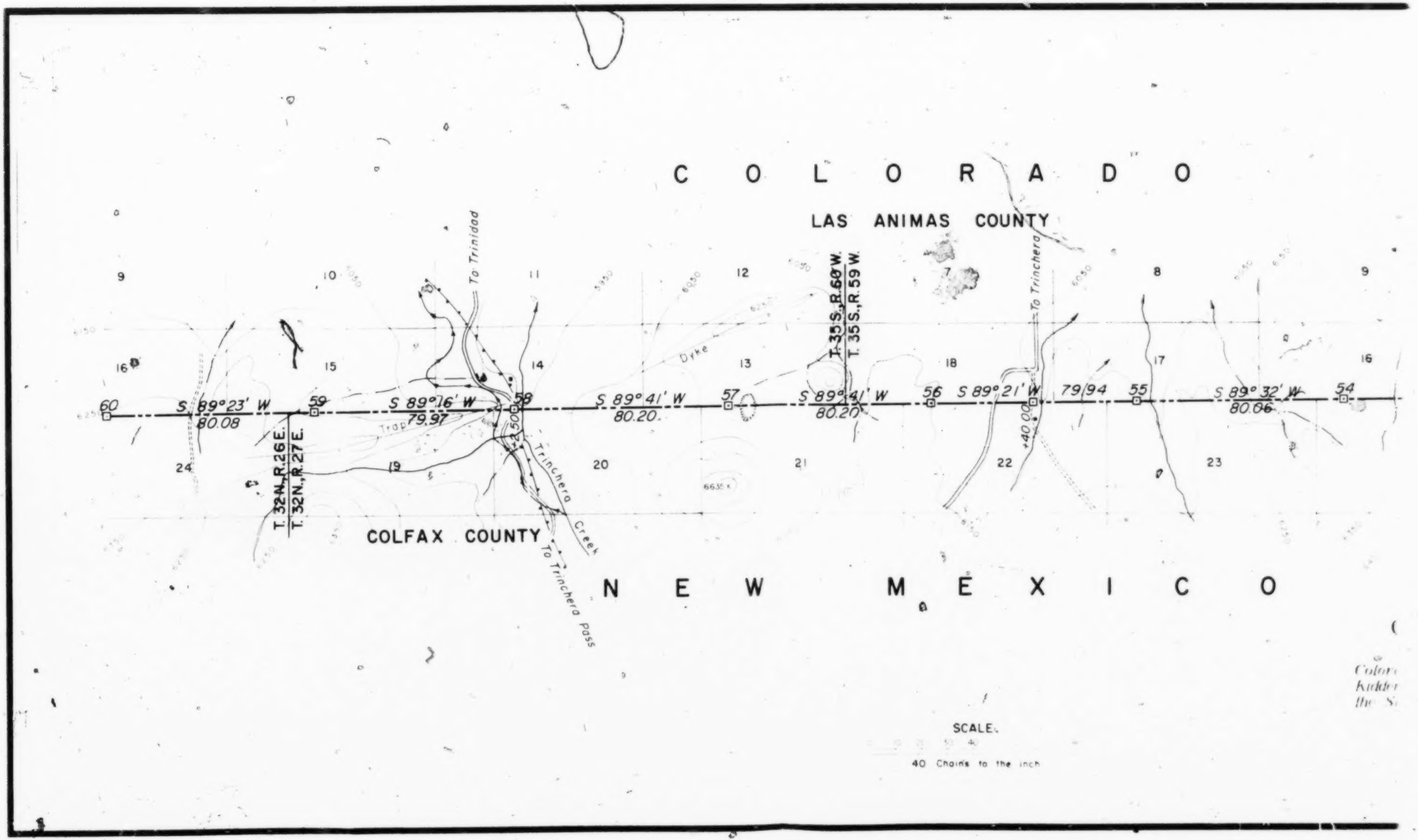
In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins in the ground, with tablet seated in the top marked Mile Corne No. 60, 1868-1925.

Land, rolling mountainous.

Soil, sandy clay and stony; 3rd rate.

No timber.



COLORADO
LAS ANIMAS COUNTY
COLFAX COUNTY
NEW MEXICO
To Trinidad
To Trinchera
Trinchera Creek
To Trinchera Pass
Dyke
Trap
T. 35 S., R. 60 W.
T. 35 S., R. 59 W.
T. 32 N., R. 26 E.
T. 32 N., R. 27 E.
S 89° 23' W
80.08
S 89° 16' W
79.97
S 89° 41' W
80.20
S 89° 41' W
80.20
S 89° 21' W
79.94
S 89° 32' W
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+2.50
+40.00
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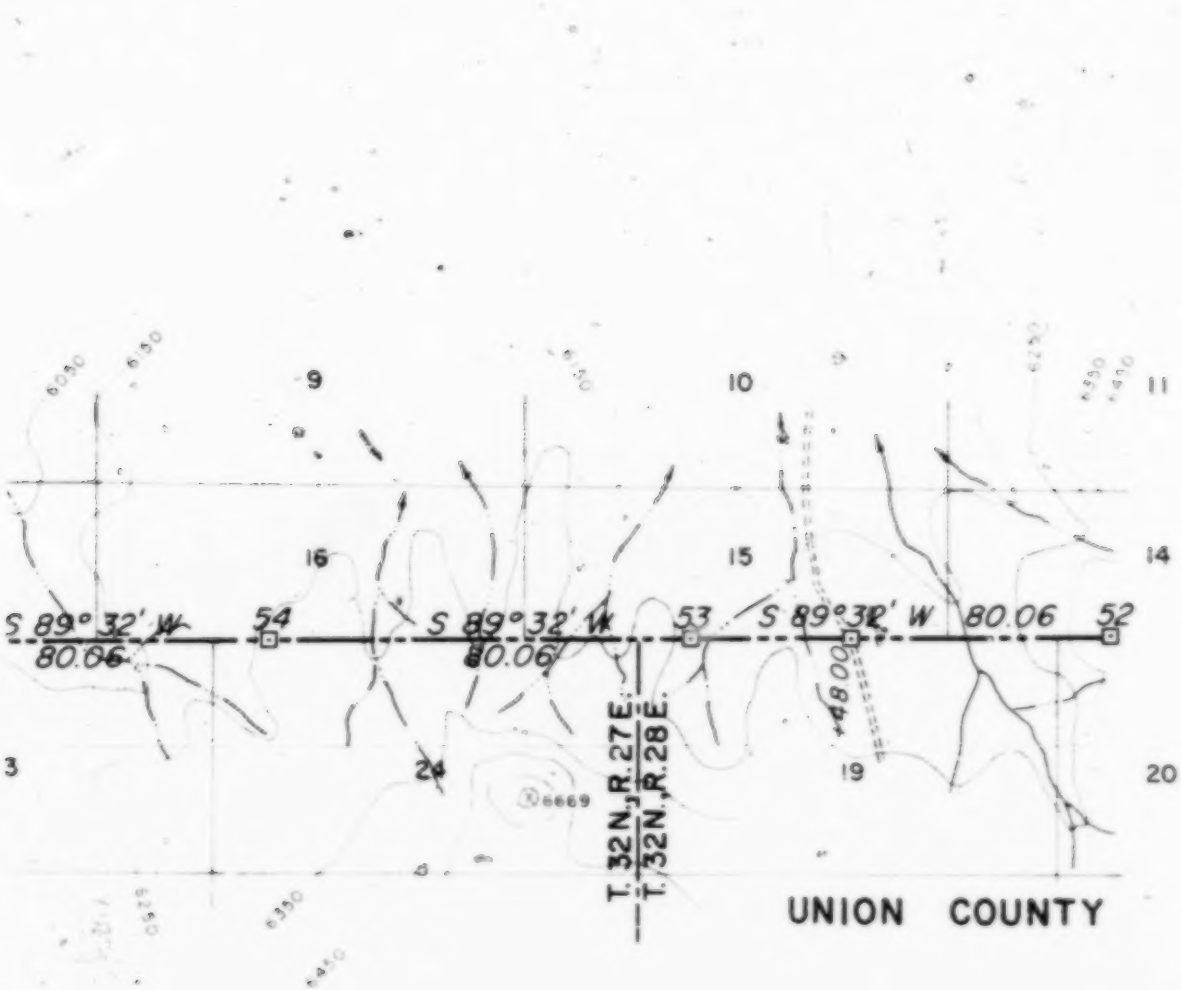
SCALE.
40 Chains to the inch



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COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree [illegible] US 108 [illegible] of the Supreme Court of the United States, dated April 14, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 61

to

MILE CORNER No. 66

Chains

THE DARLING LINE, 61ST MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 61st Mi. Cor. has become obliterated.

112.00 Altitude observation on the sun for azimuth, June 29, 1928.

160.32 N. 3.0 lks. to the parallel; thence the 62nd Mi. Cor. bears S. 1.599 chs. dist.; on this determination the true line bears S. 89° 26′ W.

REESTABLISHMENT

Thence from the 60th Mi. Cor. S. 89° 26′ W., on a reestablishment of the 61st mile.

Descend gradually over NW. slope.

20.00 Enter scattering oak brush.

29.10 Spring branch, course N. 10° W., turning to NE.; ascend gradual E. slope.

33.98 The Carpenter 272nd Mi. Cor. bears North, 15.01 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument.

38.80 Spur, slopes N. 30° E.; begin gradual descent of NW. slope.

49.80 Arroyo, water in holes, course NE.; begin ascent of SE. slope.

59.00 Small spur, slopes N.; thence along N. slope.

63.10 Road from R. L. Survant's ranch house to Trinchera, Colo., bears NE. and SW.

78.00 Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 60 + 78 Chs., 1868-1925, and build a mound of stone around the monument;

from which

R. L. Survant's ranch house bears S. 34° 56′ W., 22.74 chs. dist.

80.16 The proportional point; unable to identify Darling's 61st Mi. Cor. The point falls on unstable ground near bank of Blue Creek; I did not reestablish this corner.

Land, rolling.

Soil, sandy and stony; 2nd and 3rd rate.

No timber.

Chains

The Darling Line, 62nd Mile

REESTABLISHMENT

S. 89° 26′ W., on a reestablishment of the 62nd mile.
Across small valley.

3.00 Blue Creek, 10 lks. wide, gravel bottom, course NE.; elevation 6310 ft.

13.00 Leave valley; ascend SE. slope.

32.00 Top of spur, slopes NE.; begin gradual descent.

33.69 The Carpenter 271st Mi. Cor. bears North, 16.85 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

46.00 Head of arroyo, course NE.; begin ascent of 230 ft. over E. slope.

54.00 Small spur, slopes NE.

60.50 Head of drain, course NE.

78.20 Top of high knoll, divide between Blue Creek and Dry Creek, bears N. and S.; elevation 6650 ft.; begin gradual descent of W. slope.

80.16 Darling's 62nd Mi. Cor.; a basalt stone, 22x16x8 ins., mkd. 62 M; deposited under a mound of stone under an E. and W. fence.

In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 62, 1868-1925, and build a mound of stone around the monument.

Land, 13.00 chs. valley, balance mountainous.
Soil, sandy and stony; 2nd and 3rd rate.
No timber.

The Darling Line, 63rd Mile

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

5.41 N. 0.4 lks to the parallel; thence the Darling Astronomical Monument No. 2 bears S. 33.7 lks. dist.; on this determination the true line bears S. 89° 40′ W.

Chains THE DARLING LINE, 63RD MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

20.63 N. 0.1 lks. to the parallel; thence the 63rd Mi. Cor. bears S. 81° lks. dist.; on this determination the true line bears S. 87° 44′ W.

REESTABLISHMENT

Thence from the 62nd Mi. Cor. S. 89° 40′ W., on a reestablishment of the 63rd mile.

Descend abruptly 240 ft. on W. slope, through scattering oak brush

17.00 Base of abrupt descent, bears N. and S.; begin gradual descent in valley, through hay meadow.

19.90 Wagon road, bears N. and S.

32.70 Dry Creek, 5 lks. wide, course N. 20° E.; elevation 6370 ft.; cottonwoods along Creek; begin gradual ascent in valley; leave meadow.

33.70 The Carpenter 270th Mi. Cor. bears North, 18.48 chs. dist.; an iron post, firmly set; I remove this monument.

45.00 Arroyo, course NE.

47.00 Arroyo, course SE.

49.30 Arroyo, course N.

54.00 Base of abrupt ascent, of 240 ft., bears N. and SW.; leave valley enter oak brush.

58.91 Darling's Astronomical Monument No. 2; a charred cedar post 12x12 ins. x 9 ft., firmly set in ground and mound of stone; mark obliterated (Carpenter 270th Mi.).

In place of post

Construct a concrete monument, in a form 8x14x36 ins., set 30 ins in the ground, with tablet seated in the top marked Mile Corner No. 62 + 58.91 Chs., 1868-1925.

Thence S. 87° 44′ W., continuing on the reestablishment of the 63rd mile.

Continue ascent of steep, brushy E. slope.

16.00 Sharp spur, sloping S.; descend 80 ft. to corner, over brushy W slope.

THE DARLING LINE, 63RD MILE

20.64 Darling's 63rd Mi. Cor.; a basalt stone, 16x8x4 ins., loosely set in a small mound of stone, mkd. C on N., NM on S., 63 on E., and 68 on W. face.

In-place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 63, 1868-1925, and build a mound of stone around the monument.

Land, 37.00 chs. valley and 43.00 chs. mountainous.

Soil, sandy clay and stony; 2nd and 3rd rate.

Timber, cottonwood along Dry Creek; undergrowth, scattering oak brush.

THE DARLING LINE, 64TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

.00 N. 0.8 lks. to the parallel; the 64th Mi. Cor. has become obliterated.

.00 N. 3.0 lks. to the parallel; the 65th Mi. Cor. has become obliterated.

40.45 N. 6.8 lks. to the parallel; thence the 66th Mi. Cor. bears S. 40.7 lks dist.; altitude observation on the sun for azimuth, July 8, 1928; on this determination the true line bears S. 89° 54' W..

REESTABLISHMENT

Thence from the 63rd Mi. Cor. S. 89° 54' W., on a reestablishment of the 64th mile.

Descend W. slope, through oak brush.

.20 Head of draw, course N. 20° W., turning to N.; ascend brushy NE. slope.

.71 The Carpenter 269th Mi. Cor. bears North, 20.56 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.

Spur, slopes N.; descend W. slope.

Arroyo, course N. 15° E.; ascend over small spur.

Chains THE DARLING LINE, 64TH MILE

59.80 Small spur, slopes N. 15° E.; descend.

61.70 Arroyo, course N. 15° E.; ascend 50 ft.

65.50 Spur, slopes NE.; descend.

68.50 Arroyo, course N. 30° E.; ascend 80 ft.

75.00 Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 63 + 75 Chs., 1868-1925, and build a mound of stone around the monument;
from which
N. point of mesa bears N. 61¼° W.
Saddle Rock bears N. 88° E.

75.50 Top of sharp shale ridge, divide between Dry Creek and San Ysidro Creek, bears N. 34° E. and S. 18° W.; elevation 6730 ft.; descend steep, brushy W. slope 90 ft. to corner.

80.15 The proportional point; unable to identify Darling's 64th Mi. Cor.
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 64, 1868-1925, and build a mound of stone around the monument;
from which
N. end of mesa bears N. 60½° W.
S. end of mesa bears N. 89° W.
Land, mountainous.
Soil, stony clay; 4th rate.
No timber.

THE DARLING LINE, 65TH MILE

REESTABLISHMENT

S. 89° 54' W., on a reestablishment of the 65th mile.
Descend abruptly 130 ft., through dense oak and service brush.

12.00 Base of abrupt descent, bears N. and S.; leave brush, begin gradual descent of 110 ft., through park.

19.00 Enter dense scrub timber, bears N. and S.

THE DARLING LINE, 65TH MILE

.40 Spring branch, 2 lks. wide, course N. 25° W.; ascend 100 ft. over steep NE. slope; enter undergrowth in timber.

.79 The Carpenter 268th Mi. Cor. bears North, 20.98 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument.

.50 Spur, slopes N.; descend NW. slope.

.00 Road, bears NE. and S. 82° W.

.90 San Ysidro Creek, 20 lks. wide, stony bottom, course E. turning to NE.; elevation 6440 ft.

.36 NW. corner of Maria's ranch house, bears S. 77 lks. dist.

.80 Leave San Ysidro Creek, course S. 70° E. turning to E.

.00 Trail, bears NW. and SE.; ascend over point of spur.

.40 Point of spur, slopes N.; descend NW. slope.

.50 Spring branch, 5 lks wide, course N. 20° E.

.40 San Ysidro Creek, 35 lks. wide, course N. 15° E.; across bottom N. of creek.

.00 San Ysidro Creek, 20 lks. wide, course S. 80° E.

.00 San Ysidro Creek, course NE.; ascend 20 ft. over W. bluff of creek; leave timber.

.00 Ascend gradually in valley.

.75 The proportional point; unable to identify Darling's 65th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 65, 1868-1925, and build a mound of stone around the monument.

Land, mountainous.

Soil, stony clay; 2nd and 4th rate.

Timber, dense scrub cedar, pinon, pine and cottonwood; undergrowth, oak and service brush.

The Darling Line, 66th Mile

REESTABLISHMENT

S. 89 54' W., on a reestablishment of the 66th mile.
Ascend gradually in valley, through scattering oak brush.

0.50 Trail, bears NE. and S. 30 W.

7.65 A basalt stone, 16x10x8 ins. above ground, firmly set in ground and small mound of stone, mkd. ¼ on S. face, bears S. 3.74 chs. dist.
Abrupt ascent of 390 ft. over brushy E. slope with scattering scrub timber.

28.00 Top of abrupt ascent; begin gradual ascent on high bench.

33.98 The Carpenter 267th Mi. Cor. bears North, 21.34 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument and obliterate the marks on the bearing tree.

35.00 Leave timber, bears NE. and S.

51.50 Trail, bears NW. and SE.

55.00 Spur, slopes SE.; descend 20 ft.

57.00 Spring branch, 3 lks. wide, course SE.; thence continue ascent of bench.

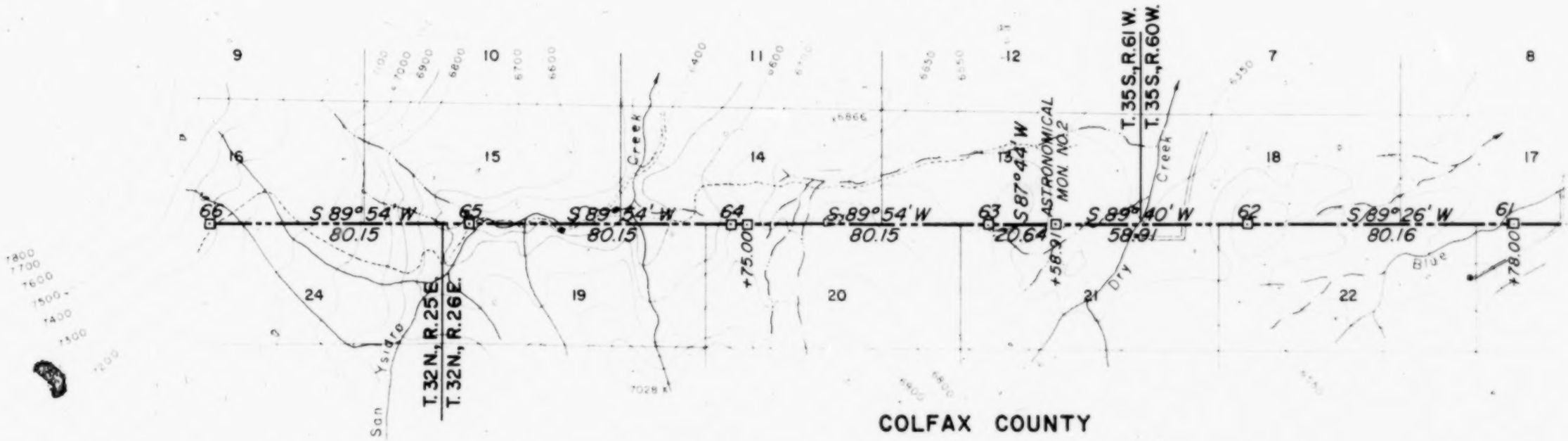
70.40 Spring branch, 2 lks. wide, course SE.

78.00 Trail, bears NE. and SW.

80.14 Darling's 66th Mi. Cor.; a basalt stone, 32x16x5 ins., firmly set in a mound of stone, under an E. and W. fence.
In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 66, 1868-1925, and build a mound of stone around the monument.
Land, mountainous.
Soil, stony clay; 3rd and 4th rate.
Timber, scattering scrub cedar and pinon; undergrowth, oak and service brush.

C O L O R A D O

LAS ANIMAS COUNTY

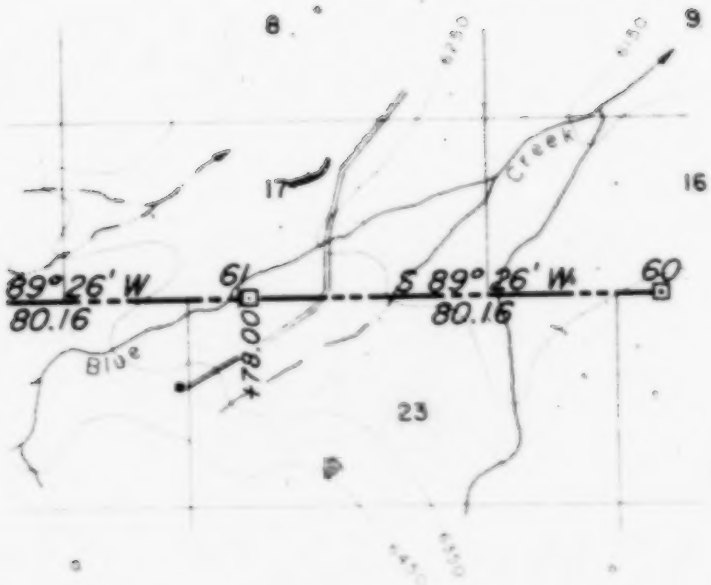


COLFAX COUNTY

N E W M E X I C O

SCALE

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 16, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 67

to

MILE CORNER No. 77

Chains THE DARLING LINE, 67TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 67th Mi. Cor. has become obliterated; altitude observation on the sun for azimuth, July 10, 1928.

160.00 The 68th Mi. Cor. was not established by Darling; point falls on steep E. slope, near foot of cliff; continue distance.

192.11 N. 4.3 lks. to the parallel; the 68 + 32.60 Mi. Cor. has become obliterated.

240.00 N. 6.8 lks. to the parallel; the 69th Mi. Cor. has become obliterated.

320.00 N. 12.2 lks. to the parallel; the 70th Mi. Cor. has become obliterated.

400.00 N. 19.0 lks. to the parallel; the 71st Mi. Cor. has become obliterated.

465.00 Altitude observation on the sun for azimuth, July 15, 1928.

476.70 N. 27.4 lks. to the parallel; thence the 72nd Mi. Cor. bears S. 6.63 chs. dist.; on this determination the true line bears S. 89° 12′ W.

REESTABLISHMENT

Thence from the 66th Mi. Cor. S. 89° 12′ W., on a reestablishment of the 67th mile.

Ascend 830 ft. over steep SE. slope, through oak and service brush.

39.11 The Carpenter 266th Mi. Cor. bears North, 22.10 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

61.00 Top of high spur, sloping SW., elevation 8130 ft.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 66 + 61 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 6 ins. diam., bears N. 21° W., 95 lks dist., mkd. WP COLO BT.

A spruce, 8 ins. diam., bears S. 43¼° W., 1.15 chs. dist., mkd. WP NM BT.

Enter dense spruce and pine timber; thence along broken S. slope.

Chains

THE DARLING LINE, 67TH MILE

79.40 The proportional point; unable to identify Darling's 67th Mi. Cor. Point falls among numerous large boulders, below high basalt rim rock; I did not reestablish this corner.

Land, mountainous.

Soil, stony loam; 4th rate.

Timber, dense spruce and pine; undergrowth, dense oak and service brush.

THE DARLING LINE, 68TH MILE

REESTABLISHMENT

S. 89° 12′ W., on a reestablishment of the 68th mile.

Ascend gradually along S. slope, through dense timber and undergrowth, in field of large boulders.

5.80 Begin ascent of SE. slope.

11.10 Top of high spur, sloping S.; elevation 8320 ft.; begin descent of SW. slope into Bear Creek Canon.

22.00 Leave dense timber, enter scattering timber in dense undergrowth; leave boulder field.

35.58 The Carpenter 265.05 Mi. Cor. bears North, 23.90 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument.

53.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 67 + 53 Chs., 1868-1925, and build a mound of stone around the monument;

from which

An oak, 8 ins. diam., bears N. 26¼° W., 25 lks. dist., mkd. WP COLO BT.

An oak, 5 ins. diam., bears S. 41½° E., 33.5 lks. dist., mkd. WP NM BT.

Corner stands in clearing for trail bearing N. 20° W. and S. 20° E.

58.50 Spring branch, 4 lks. wide, course SW.

68.70 Bear Creek, 18 lks. wide, stony bottom, course S. 15° E., elevation 7700 ft.; ascend 810 ft. over steep E. slope.

Chains

THE DARLING LINE, 68TH MILE

79.46 The proportional point; the 68th Mi. Cor. was not established by Darling; point falls on very steep E. slope; I did not establish this corner.

Land, mountainous.

Soil, stony clay and loam, 3rd and 4th rate.

Timber, dense spruce, pine and aspen; undergrowth, dense oak and service brush and willows.

THE DARLING LINE, 69TH MILE

REESTABLISHMENT

S. 89° 12′ W., on a reestablishment of the 69th mile.

Ascend steep E. slope, through dense timber and undergrowth.

31.80 Rim rock, 100 ft. high, bears N. 30° W. and S. 30° E.; leave timber and undergrowth at base of cliff, scattering oak brush at top.

33.00 Top of steep ascent, begin gradual ascent on Barilla Mesa.

34.00 Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 68 + 34 Chs., 1868-1925, and build a mound of stone around the monument;

from which

Point of mesa bears N. 85° 56′ E.

Point of mesa bears N. 51° 50′ W.

Conical mound bears S. 12¼° E.

43.50 Divide between the Las Animas and Canadian Rivers, bears NW. and SE., elevation 8530 ft.; begin gradual descent of SW. slope.

54.00 Head of draw, course S. turning to SW.; begin gradual ascent.

57.60 Small reservoir, bears N. 3.50 chs. dist.

63.00 Farm house, bears N. 3.80 chs. dist.

63.60 Enter cultivated field, bears N. and S.

73.00 Begin gradual descent.

79.46 The proportional point; 69th Mi. Cor. destroyed (Carpenter 264th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins.

THE DARLING LINE, 69TH MILE

in the ground, with tablet seated in the top marked Mile Corner No. 69, 1868-1925, and build a mound of stone around the monument.

Land, 33.00 chs. mountainous, 47.00 chs. nearly level mesa.

Soil, sandy loam and stony; 2nd and 3rd rate.

Timber, dense spruce, pine and aspen; undergrowth, oak and service brush.

THE DARLING LINE, 70TH MILE

REESTABLISHMENT

S. 89° 12′ W., on a reestablishment of the 70th mile.

Descend gradually in cultivated field.

8.10 Leave field, bears N. and S.

8.95 Lane, bears N. and S.

41.10 The Carpenter 263rd Mi. Cor. bears North, 26.53 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

42.43 Center of N. and S. lane.

42.80 Drain, course S. 5° W.; begin gradual ascent.

49.10 Wagon road, bears NW. and SE.

79.46 The proportional point; 70th Mi. Cor. destroyed (Carpenter 264th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 70, 1868-1925, and build a mound of stone around the monument;

from which

A farm house bears S. 10° 47′ E., 26.00 chs. dist.

A farm house bears S. 52° 43′ E., 56.80 chs. dist.

Land, high mesa, slightly rolling, elevation averaging around 8,500 ft.

Soil, sandy loam and stony; 2nd rate.

No timber.

Chains

THE DARLING LINE, 71ST MILE

REESTABLISHMENT

S. 89° 12' W., on a reestablishment of the 71st mile.
Ascend gradually.

2.30 Enter cultivated field, bears N. and S.

8.12 The closing cor. of secs. 19 and 20, T. 32 N., R. 25 E., N. M. Prin. Mer., New Mexico, bears S. 1.92 chs. dist.; a basalt stone, 16x7x6 ins. above ground, firmly set, mkd. NM on S., CC on N., 4 grooves on E. and 2 grooves on W. face.

15.00 Begin gradual descent.

19.90 Leave cultivated field, bears N. and S.

27.10 Head of draw, course S. 20° E.; begin gradual ascent.

41.79 The Carpenter 262nd Mi. Cor. bears North, 27.83 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

43.00 Center of lane, bears N. and S.; ascend abrupt SE. slope.

60.00 Top of rocky point, elevation 8640 ft.; begin gradual descent.

69.00 Begin ascent of E. slope.

79.46 The proportional point; unable to identify Darling's 71st Mi. Cor.
Construct a concrete monument, in a form 8x14x36 ins., set in concrete base, 16 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 71, 1868-1925, and build a mound of stone around the monument;
from which
Chester Wood's farm house bears S. 69¾° E., about 20.00 chs. dist.
Land, high rolling mesa.
Soil, sandy loam and stony; 2nd and 3rd rate.
No timber.

THE DARLING LINE, 72ND MILE

REESTABLISHMENT

S. 89° 12' W., on a reestablishment of the 72nd mile.
Ascend gradually over E. slope, through scattering oak brush.

Chains

THE DARLING LINE, 72ND MILE

10.00 Thence across nearly level mesa, which drains NW. to Sugarite Canon.

26.48 The Carpenter 261.2 Mi. Cor. bears North, 29.01 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

44.70 Head of drain, course N. 20° W.; begin gradual ascent.

70.00 Top of ascent, elevation 8710 ft.; begin gradual descent.

79.46 Darling's 72nd Mi. Cor.: a basalt stone, 24x12x10 ins., firmly set in a large mound of stone, mkd. C on N., NM on S., 72 M on E. and 08 on W. face; a basalt stone, 10x6x3 ins., mkd. 72 M, deposited under the mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set in concrete base, 16 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 72, 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 6 ins. diam., bears N. 14½° W., 96 lks. dist., mkd. COLO 72 M BT.

Land, high, rolling mesa.

Soil, sandy loam and stony; 2nd and 3rd rate.

No timber.

THE DARLING LINE, 73RD MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 17, 1928.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

76.96 N. 0.8 lks. to the parallel; thence the 73rd Mi. Cor. bears S. 66.7 lks. dist.; on this determination the true line bears S. 89° 30' W.

REESTABLISHMENT

Thence from the 72nd Mi. Cor. S. 89° 30' W., on a reestablishment of the 73rd mile.

Chains

THE DARLING LINE, 73RD MILE

Descend gradually on mesa, through scattering oak brush.

0.70 Rim rock, 100 ft. high, bears SW. and N. 25° E., turning to NE.; descend 1100 ft. over steep W. slope to corner; enter dense timber and underbrush at base of rim rock.

27.95 The Carpenter 260.2 Mi. Cor. bears North, 30.42 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

76.96 Darling's 73rd Mi. Cor.; a sandstone, 18x10x4 ins., loosely set in a small mound of stone, mkd. C on N., NM on S., 73 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 73, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 5 ins. diam., bears N. 10¼° E., 29.5 lks. dist., mkd. COLO 73 M BT.

A pine, 6 ins. diam., bears S. 10° W., 1.01 chs. dist., mkd. NM 73 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, dense spruce, aspen and pine; undergrowth, oak and service brush.

THE DARLING LINE, 74TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 20, 1928.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 74th Mi. Cor. was not established by Darling.

160.00 N. 3.0 lks. to the parallel; the 75th Mi. Cor. was not established by Darling.

Chains

THE DARLING LINE, 74TH MILE

222.05 N. 6.0 lks. to the parallel; the 75 + 62.05 Mi. Cor. has become obliterated.

240.00 N. 6.8 lks. to the parallel; the 76th Mi. Cor. has become obliterated.

325.60 N. 12.2 lks. to the parallel; thence the 77th Mi. Cor. bears N. 1.895 chs. dist.; on this determination the true line bears N. 89° 40' W.

REESTABLISHMENT

Thence from the 73rd Mi. Cor. N. 89° 40' W., on a reestablishment of the 74th mile.

Descend 110 ft. over W. slope, through scattering timber and undergrowth.

2.02 A sandstone, 24x16x3 ins., loosely set in a small mound of stone, mkd. CC on S., 4 grooves on W., and 2 grooves on E. face, bears S., 6 lks. dist.

3.00 Construct a concrete monument, in a form 16x24x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 73 + 3 Chs., 1868-1925, and build a mound of stone around the monument:

from which

A pine, 8 ins. diam., bears N. 48¾° E., 1.815 chs. dist., mkd. WP COLO BT.

A pine, 24 ins. diam., bears S. 18¾° E., 2.32 chs. dist., mkd. WP NM BT.

3.90 Wagon road, bears N. and S.; leave timber and undergrowth.

4.20 Enter hay meadow.

9.90 Sugarite (Chicorica) Creek, sand and gravel bottom, 15 lks. wide, course S. 20° W., elevation 7510 ft.; leave hay meadow, enter scattering timber and dense undergrowth; ascend 250 ft. over steep E. slope.

11.50 Channel for fish weir.

27.70 Spur, slopes S.; descend 230 ft. over brushy SW. slope.

40.80 Spring branch, course SE.; ascend 250 ft. over NE. slope, through dense timber and underbrush.

45.98 The Carpenter 259th Mi. Cor bears North, 32.11 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this

Chains THE DARLING LINE, 74TH MILE

monument and obliterate the marks on the four bearing trees.

70.40 Spur, slopes SE.; thence along S. slope.

76.20 Spur, slopes S.; descend W. slope.

81.40 The proportional point; the 74th Mi. Cor. was not established by Darling.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 74, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 24 ins. diam., bears N. 17½° E., 19 lks. dist., mkd. COLO 74 M BT.

A white pine, 7 ins. diam., bears S. 51½° E., 98 lks. dist., mkd. NM 74 M BT.

Land, mountainous.

Soil, clay and loam, stony; 2nd and 3rd rate.

Timber, yellow and white pine; undergrowth, dense oak and service brush.

THE DARLING LINE, 75TH MILE

REESTABLISHMENT

N. 89° 40′ W., on a reestablishment of the 75th mile.

Descend W. slope 150 ft., through dense timber and undergrowth.

10.50 Spring branch, course S. 30° E.; ascend 360 ft. over NE. slope.

31.00 The Carpenter 258.15 Mi. Cor. bears North, 30.73 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

38.70 Spur, slopes S. 80° E.; thence along very broken S. slope.

45.60 Gulch, course S.

57.40 Spur, slopes S.

66.00 Gulch, course S. 30° W.

69.30 Spur, slopes S.

73.30 Gulch, course SE.

The Darling Line, 75th Mile

78.70 A sandstone outcrop, 7 ft. sq., surface exposed level with ground, elevation 8125 ft.

Seat a tablet in the outcrop, marked Mile Corner No. 74 + 78.70 Chs., 1868-1925;

from which

A white pine, 7 ins. diam., bears N. 41¼° E., 82 lks. dist., mkd. WP COLO BT.

A white pine, 5 ins. diam., bears S. 54½° E., 80 lks. dist., mkd. WP NM BT.

Build a mound of stone 5 ft. base, 3 ft. high, E. of the tablet.

81.40 The proportional point; the 75th Mi. Cor. was not established by Darling. Point falls near foot of sandstone cliff; I did not establish this corner.

Land, mountainous.

Soil, sandy loam and stony; 3rd and 4th rate.

Timber, dense yellow and white pine; undergrowth, oak and service brush.

The Darling Line, 76th Mile

REESTABLISHMENT

N. 89° 40′ W., on a reestablishment of the 76th mile.

Descending along steep S. slope, through dense timber and undergrowth.

85.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 75 + 25 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A white pine, 16 ins. diam., bears N. 47½° W., 84 lks. dist., mkd. WP COLO BT.

A white pine, 6 ins. diam., bears S. 11¾° W., 55 lks. dist., mkd. WP NM BT.

Corner stands near a trail bearing NW. and SE.

87.50 West Fork of Sugarite (Chicorica) Creek, 3 lks. wide, gravel bottom, course SE. turning to S. 70° E.; elevation 7890 ft.; ascend 430 ft. over steep E. slope.

Chains

THE DARLING LINE, 76TH MILE

41.46 The Carpenter 257th Mi. Cor. bears North, 30.68 chs. dist.; an iron post firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

48.70 Spur, slopes SE.; descend SW. slope.

56.00 Trail in head of small canon, bears NW. and SE., course of canon SE.; ascend NE. slope.

65.40 Thence along N. slope; leave timber, bearing N. and SE.

73.00 Head of small canon, course N.; ascend E. slope; spring bears N. about 3.00 chs. dist.

81.40 The proportional point; unable to identify Darling's 76th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 76, 1868-1925, and build a mound of stone around the monument.

Land, mountainous.

Soil, sandy loam and stony; 3rd and 4th rate.

Timber, dense spruce, yellow and white pine; undergrowth, dense oak and service brush.

THE DARLING LINE, 77TH MILE

REESTABLISHMENT

N. 89° 40' W., on a reestablishment of the 77th mile.

Ascend 110 ft. over steep E. slope, through dense oak brush.

5.00 Top of abrupt ascent, bears N. and S. 30° E.; begin gradual ascent on Bartlett Mesa; leave oak brush.

6.57 A basalt stone, 16x8x4 ins. above ground, mkd. CC on S., 5 grooves on E., and 1 groove on W. face, bears S., 33 lks. dist.

7.54 The Carpenter 256.17 Mi. Cor. bears North, 30.67 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

48.70 A basalt stone, 16x10x6 ins. above ground, mkd. CC on S., 6 grooves on E., and 6 grooves on W. face, bears S., 11 lks. dist.

70.70 Divide between the Las Animas and Canadian Rivers, bears N. and S. 40° E.; elevation 8700 ft.; begin gradual descent.

THE DARLING LINE, 77TH MILE

Darling's 77th Mi. Cor., a basalt stone, 30x10x10 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 77 M on E., and 68 on W. face; a basalt stone, 10x8x4 ins., mkd. 77 M, deposited under the mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 8 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 77, 1868-1925, and build a mound of stone, 6 ft. diam. at base x 3 ft. diam. at top, 2 ft. high, around the monument;

from which

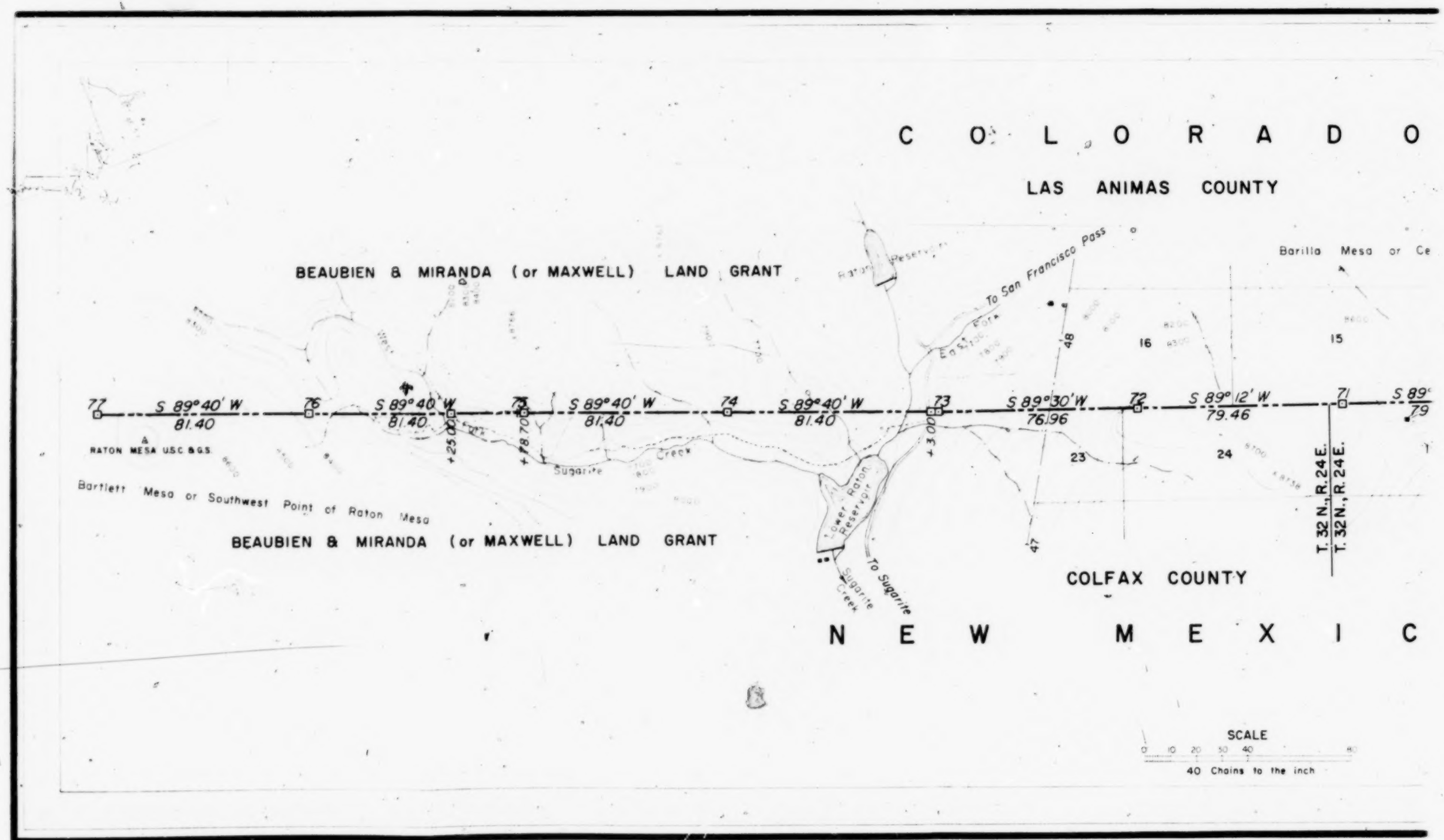
A U. S. Geological Survey Triangulation Station, elevation 8868 ft., bears S. 61° 28' E., 22.00 chs. dist.; the name of this station is Raton Mesa, the station mark is a large mound of stone (Bulletin 551, p. 77); its geographic position, on the North American datum, is:

Latitude	36° 59' 30.32"
Longitude	104° 26' 03.32"

Land, high rolling mesa.

Soil, sandy loam and stony: 3rd rate.

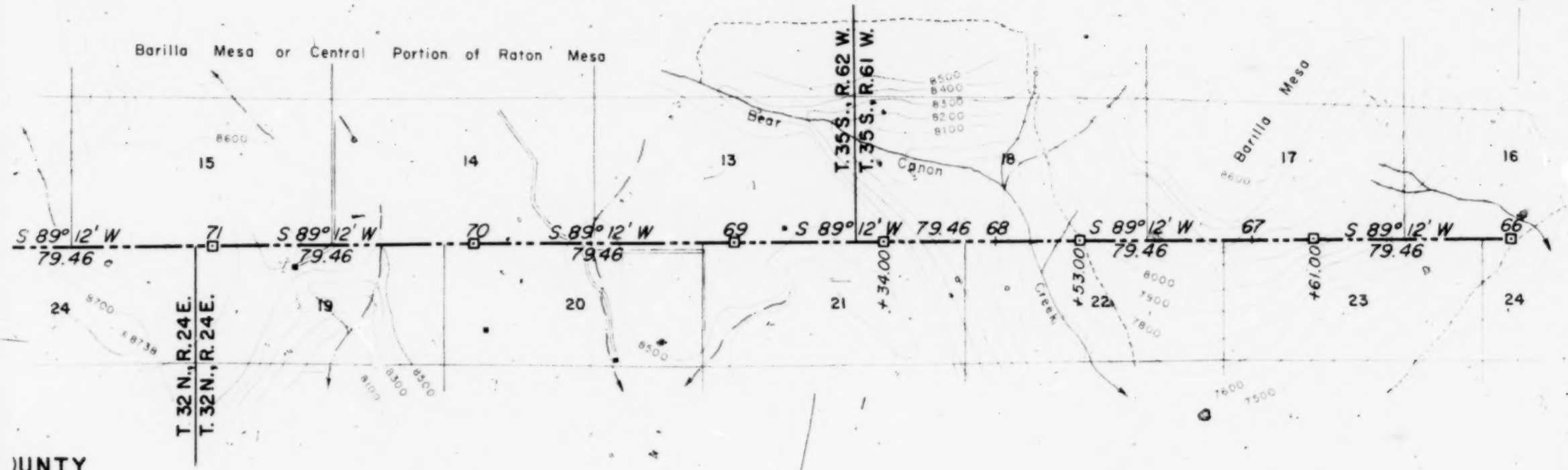
No timber.



C O L O R A D O
LAS ANIMAS COUNTY
BEAUBIEN & MIRANDA (or MAXWELL) LAND GRANT
Barilla Mesa or Ce
To San Francisco Pass
East Fork
Raton Reservoir
77
S 89°40' W
81.40
76
S 89°40' W
81.40
75
S 89°40' W
81.40
74
S 89°40' W
81.40
73
S 89°30' W
76.96
72
S 89°12' W
79.46
71
S 89°
79
+25.00
+78.70
+3.00
48
16
15
23
24
47
RATON MESA U.S.C.&G.S.
Sugarite Creek
Bartlett Mesa or Southwest Point of Raton Mesa
Lower Raton Reservoir
To Sugarite
Sugarite Creek
BEAUBIEN & MIRANDA (or MAXWELL) LAND GRANT
T. 32 N., R. 24 E.
T. 32 N., R. 24 E.
COLFAX COUNTY
N E W M E X I C
SCALE
0 10 20 30 40 80
40 Chains to the inch

R A D O

COUNTY



)UNTY

E X I C O

SCALE

30 40 80

0 Chains to the inch

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 78

to

MILE CORNER No. 86

THE DARLING LINE, 78TH MILE

RETRACEMENT

Chains

West, on a retracement of the Darling boundary, on a transit li describing a tangent.

80.18 N. 0.8 lks. to the parallel; thence the 78th Mi. Cor. bears S. 5.3 l dist.; on this determination the true line bears S. 89° 58′ W.

REESTABLISHMENT

Thence from the 77th Mi. Cor. S. 89° 58′ W., on a reestablishme of the 78th mile.

Ascend gradually, through scattering oak brush.

5.00 Begin gradual descent; leave oak brush.

19.18 The Carpenter 255th Mi. Cor. bears North, 30.57 chs. dist.; an iro post, firmly set in ground and mound of stone; I remove th monument.

46.50 Enter basin.

50.50 E. edge of pond.

55.50 Leave pond; begin gradual ascent.

58.50 Leave basin.

61.50 Begin gradual descent.

80.18 Darling's 78th Mi. Cor.; a basalt stone, 16x10x5 ins., lying on mound of stone, :nkd. C, NM, 78 M and 68 on opposite faces.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins in the ground, with tablet seated in the top marked Mile Corne No. 78, 1868-1925, and build a mound of stone around the mon ment.

Land, high rolling mesa.

Soil, sandy loam and stony; 3rd rate.

No timber.

THE DARLING LINE, 79TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.71 N. 0.8 lks. to the parallel; thence the 79th Mi. Cor. bears N. 23 lks dist.; on this determination the true line bears N. 89° 50′ W.

THE DARLING LINE, 79TH MILE

REESTABLISHMENT

Thence from the 78th Mi. Cor. N. 89° 50' W., on a reestablishment of the 79th mile.

Across nearly level mesa.

15.00 Begin gradual descent.

45.38 The Carpenter 254th Mi. Cor. bears North, 30.45 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

72.00 Rim of mesa, bears N. and S.; abrupt descent of 200 ft. to corner; enter oak brush.

79.71 Darling's 79th Mi. Cor.; a basalt stone, 20x10x4 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 79 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 12 ins. in the ground, with tablet seated in the top marked Mile Corner No. 79, 1868-1925, and build a mound of stone around the monument.

Land, 72.00 chs. nearly level mesa, 8.00 chs. steep W. slope.

Soil, sandy loam and stony; 3rd and 4th rate.

No timber.

THE DARLING LINE, 80TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

.00 Hour Angle observation of Polaris for azimuth, August 3, 1928.

1.34 N. 0.3 lks. to the parallel; the astronomical monument has become obliterated.

.00 N. 0.8 lks. to the parallel; the 80th Mi. Cor. has become obliterated.

.24 Altitude observation on the sun for azimuth, August 3, 1928.

.00 N. 3.0 lks. to the parallel; the 81st Mi. Cor. has become obliterated.

.57 N. 6.8 lks. to the parallel; thence the 82nd Mi. Cor. bears N. 47.4 lks. dist.; on this determination the true line bears N. 89° 53' W.

THE DARLING LINE, 80TH MILE

Chains *REESTABLISHMENT*

Thence from the 79th Mi. Cor. N. 89° 53' W., on a reestablishment of the 80th mile.

Descend 580 ft. over steep W. slope, through dense oak brush.

5.23 The Carpenter 253rd Mi. Cor. bears North, 31.02 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument and obliterate the marks on the bearing tree.

30.20 Gulch, course N. 15° W.; ascend 80 ft. over E. slope.

36.00 Spur, slopes NW.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Cor. No. 79 + 36 Chs., 1868-1925, and build a mound of stone around the monument;

from which

SW. corner of a farm house, bears S. 70° 26' E., 8.68 chs. dist.

Descend SW. slope.

39.06 A sandstone, 30x12x6 ins., loosely set in a small mound of stone mkd. C on N., NM on S., ½ M on E., and 1888 on W. face, bears N. 7° lks. dist.

47.50 Arroyo, course NW.; ascend NE. slope.

50.33 Telephone line, bears N. 12° E. and S. 12° W.

50.55 Telegraph line, bears N. 12° E. and S. 12° W.; descend W. slope.

51.19 East edge of railroad cut, bears N. 12° E. and S. 12° W.

51.34 Darling Astronomical Monument No. 3 has been destroyed by the railroad cut.

51.77 East bound track of the A.T. & S.F. R.R., bears N. 12¾° E. (in a curve) and S. 13° 03' W., 2.20 chs. dist. to tunnel.

52.22 West bound track of the A.T. & S.F. R.R., bears N. 15½° E. (in a curve) and S. 18° 37' W., 2.10 chs. to tunnel.

52.36 A.T. & S.F. R.R. Company state line monument bears N. 23.5 lks. dist.; a concrete shaft, 12x12 ins. x 9 ft., set in a concrete base 48x48 ins.; elevation 7576 ft.

Ascend 270 ft. over steep E. slope.

53.22 West edge of railroad cut, bears N. and S.

THE DARLING LINE, 80TH MILE.

Telephone line, bears N. 2° E. and S. 2° W.

Spur ridge, bears N. and S.

Construct a concrete monument, in a form, 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 79 + 65 Chs., 1868-1925, and build a mound of stone around the monument:

from which

A pine, 4 ins. diam., bears N. 68° W., 2.60 chs. dist., mkd. WP COLO BT.

A pine, 5 ins. diam., bears S. 16° W., 1.99 chs. dist., mkd. WP NM BT.

Descend W. slope.

Enter scattering scrub timber, bears N. and S.

The Carpenter 252.2 Mi. Cor. bears North, 31.02 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument; the two bearing trees have disappeared.

State highway from Raton, N. M., to Trinidad, Colo., bears NE. and W., curving around head of small gulch, course NW.; ascend NE. slope.

Telephone line, bears N. 9° E. and S. 9° W.

Leave highway, bearing NW. and E.

The proportional point: 80th Mi. Cor. destroyed (Carpenter 253rd Mi.).

Construct a concrete monument, in a form 10x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 80, 1868-1925, and build a mound of stone around the monument:

from which

A pine, 6 ins. diam., bears N. 74° W., 3.26 chs. dist., mkd. COLO 80 M BT.

A pine, 6 ins. diam., bears S. 11° E., 1.26 chs. dist., mkd. NM 80 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, scattering scrub pine, undergrowth, oak and service brush.

THE DARLING LINE, 81ST MILE

Chains

REESTABLISHMENT

N. 89° 53' W., on a reestablishment of the 81st mile.
Ascend gradual NE. slope, through scattering scrub timber and undergrowth.

1.25 Wagon road, bears NW. and SE.

1.30 Divide between the Las Animas and Canadian Rivers, bears NW. and SE., elevation 7790 ft.; thence along broken S. slope.

4.50 Head of small canon, course S. 10° E.

9.00 Spur, slopes S.

18.20 Wagon road, bears N. 15° E. and S. 15° W. in bottom of small canon, course S. 15° W.

25.30 Spur, slopes S.

32.70 Head of drain, course S., turning to SE.

46.00 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 80 + 46 Chs., 1868-1925, and build a mound of stone and earth around the monument;
from which
A pine, 9 ins. diam., bears N. 60½° E., 1.92 chs. dist., mkd. WP COLO BT.
A pine, 5 ins. diam., bears S. 34½° E., 38 lks. dist., mkd. WP NM BT.
Elevation of monument 7828.32 ft.
A U.S.G.S. Bench Mark, elevation 7889.39 ft., bears S. 15° 16' W., 21.82 chs. dist.

47.34 State highway from Raton, N. M., to Trinidad, Colo., on divide between the Las Animas and Canadian Rivers, bears N. 47° E. and S. 13° W.; thence along N. slope; divide bears SW.

47.88 A granite stone, 25x11x6 ins. above ground, Santa Fe Trail Marker, bears N. 8 lks. dist.

51.35 The Carpenter 251.42 Mi. Cor. bears North, 31.10 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

52.60 Head of canon, course N. 15° E.

Chains

THE DARLING LINE, 81ST MILE

58.00 Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 80 + 58 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A pine, 6 ins. diam., bears N. 47° W., 1.23 chs. dist., mkd. WP COLO BT.

A pine, 5 ins. diam., bears S. 83° W., 1.33 chs. dist., mkd. WP NM BT

58.30 Divide between the Las Animas and Canadian Rivers, bears N. 35° W. and S. 20° E., elevation 7870; begin gradual descent.

72.00 Abrupt descent of 130 ft. to corner.

79.19 The proportional point; 81st Mi. Cor. destroyed (Carpenter 253rd Mi.)

Construct a concrete monument, in a form 8x14x36 ins., set in concrete base 22 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 81, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 18 ins. diam., bears N. 55¼° W., 1.77 chs. dist., mkd. COLO 81 M BT.

A pine, 5 ins. diam., bears S. 57½° W.; 59 lks dist., mkd. NM 81 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, scattering, scrub pine and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 82ND MILE

REESTABLISHMENT

N. 89° 53′ W., on a reestablishment of the 82nd mile.

Descend steep W. slope, through scattering timber and dense oak brush.

1.60 Small canon, course S.; ascend 110 ft. over brushy E. slope.

2.60 Spur, slopes S. 15° E.; descend SW. slope.

Chains THE DARLING LINE, 82ND MILE

12.90 Gulch, course SE.; ascend 140 ft. over steep E. slope.

19.90 Ridge, bears N. and S.; begin descent of 300 ft. over W. slope.

36.00 Spring branch, 2 lks. wide, in canon, course S. 10° E.; ascend 290 f over steep E. slope.

41.18 The Carpenter 250.55 Mi. Cor. bears North, 31.31 chs. dist.; a iron post, firmly set in ground and mound of stone; I remove 'h monument and obliterate the marks on the four bearing trees.

54.70 Ridge, bears N. and S., begin gradual descent.

57.70 Abrupt descent of 140 ft. over SW. slope.

66.20 Gulch, course SW.; ascend gentle SE. slope.

67.80 Spur, slopes S. 60° W.; descend 90 ft. over W. slope.

72.20 Arroyo in canon, course S. 15° E.; ascend 160 ft. to corner.

79.19 Darling's 82nd Mi. Cor.; a sandstone, 22x8x4 ins., loosely set in small mound of stone, mkd. C on N., NM on S., 82 M on E., an 1868 on W. face;

from vhich

A yellow pine stump, bears N. 6¾° E., 89 lks. dist., mkd. BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins in the ground, with tablet seated in the top marked Mile Corne No. 82, 1868-1925, and build a mound of stone around the monu ment;

from which

A pine, 6 ins. diam., bears N. 36½° E., 51 lks. dist., mkd. COL 82 M BT.

A pine, 10 ins. diam., bears S. 48¾° E., 60 lks. dist., mkd. NM 82 M BT.

Land, mountainous.

Soil, sandy and stony; 3rd rate.

Timber, scattering scrub yellow and white pine and pinon; under growth, dense oak and service brush.

The Darling Line, 83rd Mile

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.58 N. 0.8 lks. to the parallel, thence the 83rd Mi. Cor. bears S. 22.4 lks. dist.; on this determination the true line bears S. 89° 50′ W.

REESTABLISHMENT

Thence from the 82nd Mi. Cor. S. 89° 50′ W., on a reestablishment of the 83rd mile.

Ascend 90 ft. over steep E. slope, through scattering timber and dense undergrowth.

6.00 Top of steep ascent, begin gradual ascent on ridge.

25.50 Top of spur ridge, bears N. and S. 60° E.; descend 160 ft. over SW. slope.

37.10 Spring branch in canon, course S. 30° E., turning to S. 70° E.; ascend 260 ft. over E. slope.

47.64 The Carpenter 249.55 Mi. Cor. bears North, 31.68 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

54.40 Ridge, bears N. and S.; elevation 8000 ft.; begin descent of 190 ft. over W. slope to corner.

79.58 Darling's 83rd Mi. Cor.; a sandstone, 18x6x5 ins., firmly set in ground and small mound of stone, mkd. C on N., NM on S., 83 M on E., and 1868 on W. face; a sandstone, 9x6x2 ins., mkd. 83 M, deposited in the mound of stone;

from which

A pine tree stump, 16 ins. diam., bears N. 14¼° W., 62 lks. dist., no marks.

A spruce, 14 ins. diam., bears S. 15½° E., 47 lks. dist., blazed.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 83, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 8 ins. diam., bears N. 41½° W., 1.72 chs. dist., mkd.

Chains

THE DARLING LINE, 83RD MILE

COLO 83 M BT.

A pine, 7 ins. diam., bears S. 19½° W., 65 lks. dist., mkd. NM 83 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, scattering scrub yellow and white pine and spruce; under growth, oak, wild cherry and locust.

THE DARLING LINE, 84TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth August 9, 1928.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.96 N. 0.8 lks. to the parallel; thence the 84th Mi. Cor. bears S. 24.6 lks. dist.; on this determination the true line bears S. 89° 49′ W.

REESTABLISHMENT

Thence from the 83rd Mi. Cor. S. 89° 49′ W., on a reestablishment of the 84th mile.

Descend 80 ft. over W. slope, through scattering timber and undergrowth.

7.40 Head of canon, course S.; ascend 150 ft. over E. slope.

21.60 Divide between the Las Animas and Canadian Rivers, bears NE and W., elevation 7880 ft.; descend NW. slope.

27.00 Leave divide, bearing NW. and E.

33.40 Descend steep W. slope.

40.10 Head of canon, course S.; ascend 90 ft. over E. slope.

56.40 Divide between the Las Animas and Canadian Rivers, bears NE and SW.; descend 100 ft. over NW. slope.

65.81 The Carpenter 248.325 Mi. Cor. bears North, 32.57 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

75.60 Small spur, slopes N.

chains

The Darling Line, 84th Mile

79.96 Darling's 84th Mi. Cor.: a sandstone, 32x14x4 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 84 M on E., and 1868 on W. face;

from which

A pine, 22 ins. diam., bears N. 59° E., 8 lks. dist., mkd. 84 M BT.

A large pine stump, bears S. 14¾° E., 34 lks. dist.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground with tablet seated in the top marked Mile Corner No. 84, 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 7 ins. diam., bears N. 14¾° E., 43 lks. dist., mkd. COLO 84 M BT.

A pine, 6 ins. diam., bears S. 40¾° W., 24 lks. dist., mkd. NM 84 M BT.

Land, mountainous.

Soil, sandy loam and stony: 3rd rate.

Timber, medium thick scrub yellow and white pine and spruce: undergrowth, dense oak and service brush.

The Darling Line, 85th Mile.

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.12 N. 0.8 lks. to the parallel; thence the 85th Mi. Cor. bears N. 29.4 lks. dist.: on this determination the true line bears N. 89° 47' W.

REESTABLISHMENT

Thence from the 84th Mi. Cor. N. 89° 47' W., on a reestablishment of the 85th mile.

Descend NW. slope, through timber and undergrowth.

80 Head of drain in head of canon; course N.; ascend 100 ft. over steep NE. slope.

12.00 Spur, slopes N.; thence along broken N. slope.

Chains

THE DARLING LINE, 85TH MILE

22.00 Head of drain, course N.

25.50 Spur, slopes N. 10° W.; descend 210 ft. over W. slope.

41.90 Canon, course N. 35° W.; ascend 100 ft. over NE. slope.

46.07 The Carpenter 247.55 Mi. Cor. bears North, 32.73 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

50.00 Spur, slopes N.; descend 100 ft. over W. slope.

55.70 Canon, course N.; ascend 150 ft. over steep E. slope.

65.90 Spur, slopes N.; descend 140 ft. over steep W. slope.

75.60 Canon, course N. 10° E.; ascend 40 ft. over E. slope to corner.

79.12 Darling's 85th Mi. Cor.; a sandstone, 18x12x5 ins., lying on the ground mkd. C, NM, 85 M, and 68 on opposite faces;

from which

A pine, 18 ins. diam., bears S. 26° W., 60 lks. dist., mkd. NM 85 M BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 85, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 9 ins. diam., bears N. 26¼° W., 1.11 chs. dist.; mkd. COLO 85 M BT.

A pine, 7 ins. diam., bears S. 58° W., 1.04 chs. dist., mkd. NM 85 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, medium thick yellow and white pine and spruce; undergrowth, oak and service brush.

THE DARLING LINE, 86TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent:

Chains

THE DARLING LINE, 86TH MILE

8.54 Hour Angle observation of Polaris for azimuth, August 10, 1928.

79.19 N. 0.8 lks. to the parallel; thence the 86th Mi. Cor. bears S. 41.6 lks. dist.; on this determination the true line bears S. 89° 42' W.

REESTABLISHMENT

Thence from the 85th Mi. Cor. S. 89° 42' W., on a reestablishment of the 86th mile.

Ascend 130 ft. over steep E. slope, through timber and undergrowth.

7.00 Spur, slopes N.; descend 100 ft. over W. slope.

17.00 Head of canon, course N. 15° E.; ascend 100 ft. over E. slope.

23.50 Spur, slopes N.; descend 80 ft. over W. slope.

29.13 Telephone line, bears N. 5¾° E. and S. 5¾° W.

30.30 Chicken (Gallinas) Canon near head, course N. 7° E.; ascend E. slope.

30.50 Electric power line, bears N. 6¼° E. and S. 0° 15' W.

30.96 Wagon road, bears N. 6½° E. and S.

31.50 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 85 + 31.50 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A pine, 8 ins. diam., bears N. 83° W., 1.07 chs. dist., mkd. WP COLO BT.

A pine, 9 ins. diam., bears S. 58½° W., 85 lks. dist., mkd. WP NM BT.

39.30 Ridge, divide between Chicken (Gallinas) and Long's Canons, bears N. and S., elevation 7300 ft.; descend 230 ft. over W. slope.

45.60 Small canon, course SW., turning to N. 80° W.; thence cross S. slope.

46.90 Spur, slopes SW.

47.70 Arroyo in canon, course N. 80° W.; ascend NE. slope.

48.50 Spur, slopes ...; descend W. slope.

49.05 The Carpenter 246.25 Mi Cor. bears North, 33.40 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

Chains THE DARLING LINE, 86TH MILE

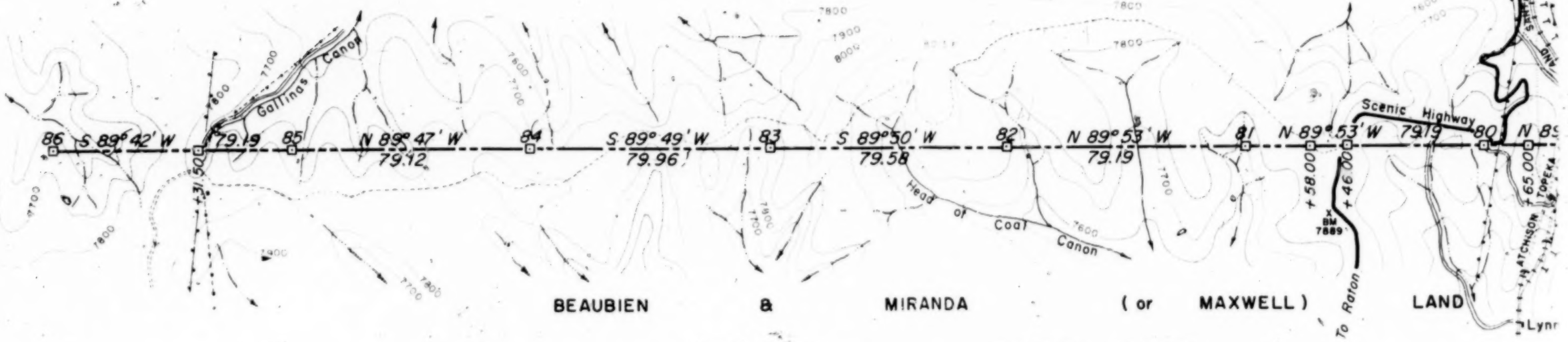
71.50 Arroyo in canon, course N.; ascend 150 ft. over steep E. slope to corner.

79.19 Darling's 86th Mi. Cor.; a sandstone, 20x10x4 ins., lying on the ground, mkd. C, NM, 86 M, and 1868 on opposite faces;
from which
A yellow pine stump, bears N. 55½° E., 75 lks. dist., mkd. BT.
A yellow pine stump, bears S. 54° W., 19 lks. dist., mkd. BT.
In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 86, 1868-1925, and build a mound of stone around the monument;
from which
A pine, 10 ins. diam., bears N. 25½° W., 96 lks. dist., mkd. COLO 86 M BT.
A pine, 12 ins. diam., bears S. 41¾° W., 1.29 chs. dist., mkd. NM 86 M BT.
Land, mountainous.
Soil, sandy loam and stony; 3rd rate.
Timber, medium thick yellow and white pine and spruce; undergrowth, oak and service brush.

C O L O R A D O

LAS ANIMAS COUNTY

BEAUBIEN & MIRANDA (or MAXWELL)



BEAUBIEN & MIRANDA (or MAXWELL) LAND

COLFAX COUNTY

N E W M E X I C O

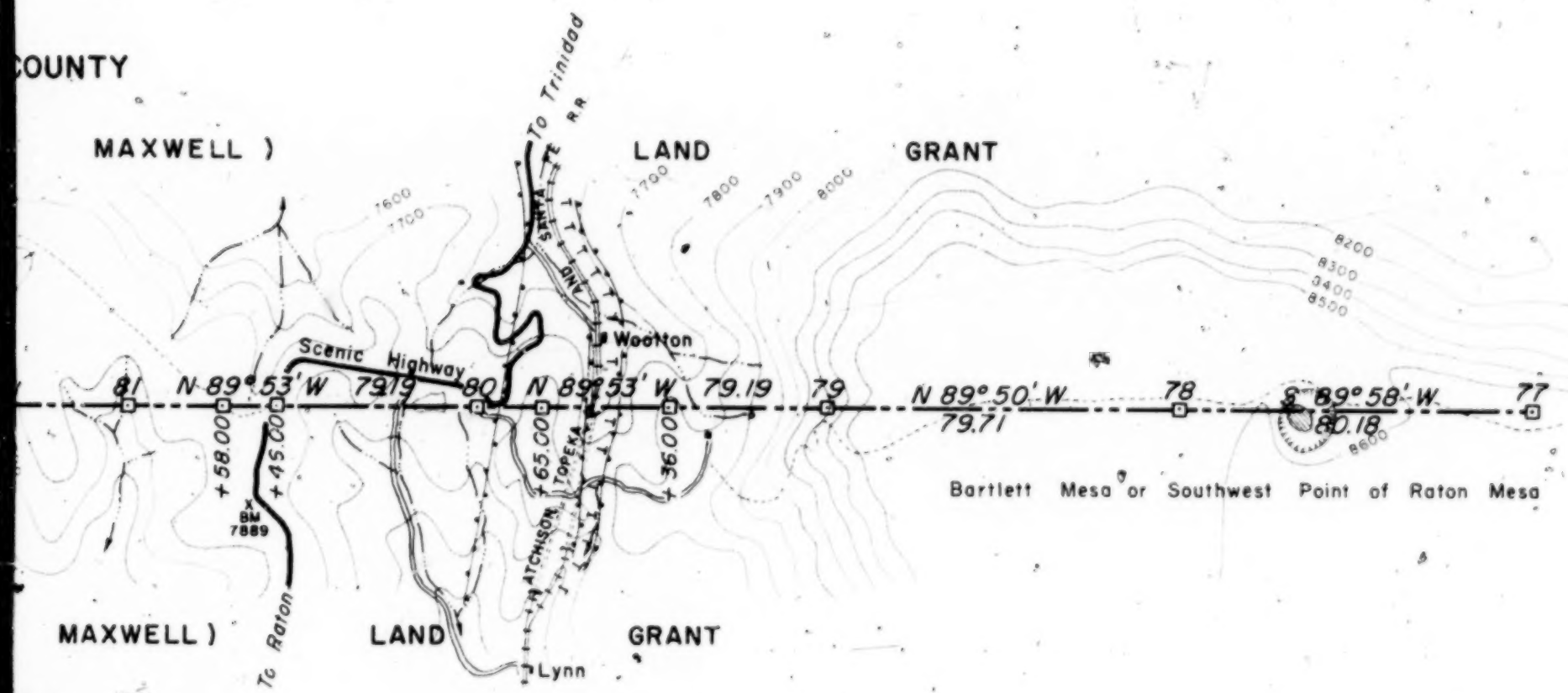
SCALE

0 10 20 30 40 80

40 Chains to the inch

A D O .

COUNTY



Bartlett Mesa or Southwest Point of Raton Mesa

TY

X I C O

E

80

the inch

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 87

to

MILE CORNER No. 94

THE DARLING LINE, 87TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit li describing a tangent.

79.01 N. 0.8 lks. to the parallel; thence the 87th Mi. Cor. bears S. 6.1 lk dist.; on this determination the true line bears S. 89° 57′ W.

REESTABLISHMENT

Thence from the 86th Mi. Cor. S. 89° 57′ W., on a reestablishmen of the 87th mile.

Ascend gradually, through timber and undergrowth.

1.40 Spur, slopes N.; descend 170 ft. over steep W. slope.

8.30 Canon, course N. 10° E.; ascend 200 ft. over steep E. slope.

19.60 Spur, slopes N. 20° E.; begin gradual descent over NW. slope.

27.90 Small canon near head, course N.; ascend 150 ft. over brushy E. slope.

38.30 Ridge, bears N. 30° W. and S. 30° E.; descend 310 ft. over broke SW. slope.

57.30 Short gulch, course SW. turning to W. in canon.

59.00 Point of spur, slopes SW.

60.50 Spring branch in canon, 2 lks. wide, course N. turning to NW., eleva tion 7460 ft.

62.40 Arroyo in canon, course N. 20° E.; ascend 230 ft. over steep NE slope.

78.00 Top of ascent, begin gradual descent.

79.01 Darling's 87th Mi. Cor.; a sandstone, 16x8x3 ins., firmly set in small mound of stone, mkd. C on N., NM on S., 87 M on E., and 68 on W. face; a sandstone, 16x6x3 ins., mkd. 87 M, deposited under the mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins in the ground, with tablet seated in the top marked Mile Corner No. 87, 1868-1925, and build a mound of stone around the monument;

from which

Chains

THE DARLING LINE, 87TH MILE

A pine, 14 ins. diam., bears N. 40° E., 61 lks. dist., mkd. COLO 87 M BT.

A pine, 10 ins. diam., bears S. 67¾° E., 71 lks. dist., mkd. NM 87 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, medium thick yellow and white pine, spruce and cedar; undergrowth, oak and service brush.

THE DARLING LINE, 88TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

12.52 Altitude observation on the sun for azimuth, August 16, 1928.

78.65 N. 0.8 lks. to the parallel; thence the 88th Mi. Cor. bears S. 11 lks. dist.; on this determination the true line bears S. 89° 55′ W.

REESTABLISHMENT

Thence from the 87th Mi. Cor. S. 89° 55′ W., on a reestablishment of the 88th mile.

Along N. slope, through timber and undergrowth.

2.90 Spur, slopes NW.; begin gradual descent of SW. slope.

11.20 Abrupt descent of 320 ft.

12.00 The Carpenter 245th Mi. Cor. bears North, 33.99 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

26.10 Arroyo in canon, course N. 35° W. turning to N.; ascend 280 ft. over steep E. slope.

41.90 Spur ridge, slopes N. 5° W.; descend 310 ft. over W. slope.

57.50 Spring branch in canon, course N.; ascend 100 ft. over NE. slope.

60.00 Leave timber bearing N. and S., continue in dense brush.

62.90 Spur, slopes N.; descend 80 ft. over NW. slope.

71.80 Spring branch in canon, course NE.; ascend 160 ft. over steep SE. slope to corner.

Chains

THE DARLING LINE, 88TH MILE

75.98 The Carpenter 244.184 Mi. Cor. bears North, 34.46 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument

78.65 Darling's 88th Mi. Cor.; a sandstone, 30x8x7 ins., firmly set in a mound of stone on small sandstone ledge, mkd. C on N., NM on S., 88 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set in concrete base 22 ins. in ground on bedrock, with tablet seated in the top marked Mile Corner No. 88, 1868-1925, and build a mound of stone around the monument.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, scattering scrub pinon, cedar, and yellow and white pine, undergrowth, dense oak and service brush.

THE DARLING LINE, 89TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.03 N. 0.8 lks. to the parallel thence the 89th Mi. Cor. bears N. 13 lks. dist.; on this de[illegible]n the true line bears N. 89° 54' W.

REESTABLISHMENT

Thence from the 88th Mi. Cor. N. 89° 54' W., on a reestablishment of the 89th mile.

Ascend 100 ft. over steep SE. slope, through dense undergrowth.

5.00 Enter scattering scrub timber bearing N. and S.

7.00 Spur, slopes SE.; begin gradual descent along SW. slope.

12.10 Head of short canon, course SE.; ascend E. slope; enter scattering pine in cedar and pinon.

18.90 Ridge, bears N. 37° E. and S. 37° W.; descend 310 ft. over W. slope

23.70 Leave scrub timber, bears N. and S.; begin abrupt descent.

37.70 Spring branch in canon, course N. 20° E.; ascend 280 ft. over E. slope.

chains

THE DARLING LINE, 89TH MILE

52.00 Spur, slopes N. 60° E.: ascend along spur.

60.50 Leave spur, sloping N. 65° E. turning to E.: thence along N. slope.

68.00 Descend NW. slope.

76.00 Canon, course N. 70° E.: ascend steep E. slope.

79.03 Darling's 89th Mi. Cor.: a sandstone, 16x8x6 ins., loosely set in a small mound of stone, mkd. C on N., NM on S., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 16 ins. in the ground, with tablet seated in the top marked Mile Corner No. 89, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 7 ins. diam., bears N. 38° E., 30 lks. dist., mkd. COLO 89 M BT.

A pine, 10 ins. diam., bears S. 5° E., 1.69 chs. dist., mkd. NM 89 M BT.

Land, mountainous.

Soil, sandy loam and stony: 3rd rate.

Timber, scattering scrub cedar, pinon and pine; undergrowth, dense oak and service brush.

THE DARLING LINE, 90TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

13.00 Altitude observation on the sun for azimuth, August 18, 1928.

79.32 N. 0.8 lks. to the parallel; thence the 90th Mi. Cor. bears S. 6.3 lks. dist.; on this determination the true line bears S. 89° 57' W.

REESTABLISHMENT

Thence from the 89th Mi. Cor., S. 89° 57' W., on a reestablishment of the 90th mile.

Chains THE DARLING LINE, 90TH MILE

Ascend steep E. slope, through scattering scrub timber and dens undergrowth.

12.77 The Carpenter 243rd Mi. Cor. bears North, 34.72 chs. dist.; an iro post, firmly set in ground and mound of stone; I remove thi monument and obliterate the marks on the four bearing trees.

Ascend along SE. slope; enter dense timber..

16.60 Ridge, bears N. 30° E. and S. 30° W.

18.70 Saddle on ridge at head of canon, course S. 80° E.; descend 130 ft over W. slope.

27.60 Arroyo in canon near head, course N. 20° E.; ascend 180 ft. over steep E. slope.

45.20 Ridge, bears N. 25° W. and S. 25° E.; descend 230 ft. over SW slope.

64.50 Gulch, course S. 50° W.; ascend steep SE. slope.

69.80 Spur, slopes SW.; descend W. slope.

74.00 Gulch, course S. 10° W.; ascend steep E. slope.

79.32 Darling's 90th Mi. Cor.; a sandstone, 34x14x6 ins., loosely set in a mound of stone, mkd. C on N., NM on S., 90 M on E., and 68 on W. face;

from which

A pine, 18 ins. diam., bears N. 37° E., 50 lks. dist., mkd. C 90 M BT.

A pine, 24 ins. diam., bears West, 51 lks. dist., blazed.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins in the ground; with tablet seated in the top marked Mile Corner No. 90, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 10 ins. diam., bears N. 44¾° W., 1.33 chs. dist., mkd COLO 90 M BT.

A pine, 5 ins. diam., bears S. 0° 30' E., 55 lks. dist., mkd. NM 90 M BT.

Corner stands on small spur, sloping S., under an E. and W. fence.

Land mountainous.

Soil, sandy loam and stony; 3rd rate.

Chains

THE DARLING LINE, 90TH MILE

Timber, yellow and white pine, spruce and scrub cedar and pinon; undergrowth, oak and service brush.

THE DARLING LINE, 91ST MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.19 N. 0.8 lks. to the parallel; thence the 91st Mi. Cor. bears N. 3.5 lks. dist.; on this determination the true line bears N. 89° 58' W.

REESTABLISHMENT

Thence from the 90th Mi. Cor. N. 89° 58' W., on a reestablishment of the 91st mile.

Descend gradually, through timber and undergrowth.

1.00 Small drain, course S.; ascend very gradually.

2.90 Spur, slopes S.; abrupt descent of 250 ft. over SW. slope.

9.80 Gulch, course S. 60° W.

11.00 Small spur, slopes SW.

13.54 The Carpenter 242nd Mi. Cor. bears North, 35.00 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

14.90 Arroyo in canon, course NW. turning to N. 75° W.; ascend 70 ft. over NE. slope.

24.70 Rounding spur, slopes N.; descend 190 ft. over NW. slope.

39.80 Canon, course N. 20° W. turning to N. 10° E.; ascend 210 ft. over NE. slope.

55.00 Spur, slopes N.; thence along N. slope.

61.50 Head of drain, course N. 5° E.

67.60 Spur, slopes NW.; descend 230 ft. over SW. slope to corner.

79.19 Darling's 91st Mi. Cor.; a sandstone, 24x14x4 ins., lying on a small mound of stone, mkd. C, NM, 91 M and 68 on opposite faces; from which

A pine, 16 ins. diam., bears N. 37° W., 61 lks. dist., mkd. BT.

Chains

THE DARLING LINE, 91ST MILE

A pine, 18 ins. diam., bears S. 29¼° W., 91 lks. dist., blazed.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 91, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 16 ins. diam., bears N. 37° W., 61 lks. dist., mkd. COLO 91 M BT (original tree remarked).

A spruce, 10 ins. diam., bears S. 93¼° W., 59 lks. dist., mkd. NM 91 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy clay and stony; 3rd rate.

Timber, scattering yellow and white pine and spruce; undergrowth, dense oak, service and locust brush.

THE DARLING LINE, 92ND MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

78.87 N. 0.8 lks. to the parallel; thence the 92nd Mi. Cor. bears S. 21 lks. dist.; altitude observation on the sun for azimuth, August 23 and 24, 1928; on this determination the true line bears S. 89° 51' W.

REESTABLISHMENT

Thence from the 91st Mi. Cor. S. 89° 51' W., on a reestablishment of the 92nd mile.

Descend 95 ft. over steep W. slope, through scrub timber and undergrowth.

2.60 Narrow gulch in canon, course NW.; ascend 220 ft. over NE. slope.

15.67 The Carpenter 241st Mi. Cor. bears North, 35.63 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.

18.50 Spur, slopes NE.

Chains

THE DARLING LINE, 92ND MILE

21.00 Swale 20 ft. deep.

31.00 Ridge, bears N. 18° W. and S. 18° E.; descend 450 ft. over SW. and W. slope.

49.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 91 + 49 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 8 ins. diam., bears N. 60½° E., 1.80 chs. dist., mkd. WP COLO BT.

A pine, 6 ins. diam., bears S. 68¾° E., 1.35 chs. dist., mkd. WP NM BT.

50.40 Spring branch in canon, course N. 5° W. turning to NE.; ascend 170 ft. over NE. slope.

51.00 Leave timber, bears NE. and S.

50.10 Spur, slopes N. 15° E.; descend 180 ft. over NW. slope.

50.61 The Carpenter 240.325 Mi. Cor. bears North, 35.82 chs. dist.; an iron post, firmly set in the ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

55.70 Long's Canon Creek, water in holes, running stream 5 lks. wide, stone and gravel bottom, course N. 9° E., elevation 6900 ft.; ascend gradually in valley; leave undergrowth.

75.89 Abandoned railroad grade, from Trinidad, Colo., to Catskill, N. M., bears N. 45½° E. and S. 49¼° W.

76.87 Darling's 92nd Mi. Cor.; a sandstone, 32x10x6 ins., broken at the ground, one part 10 ins. in ground, and mound of stone, no marks.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 92, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 5 ins. diam., bears N. 53½° E., 2.84 chs. dist., mkd. COLO 92 M BT.

A cottonwood, 10 ins. diam., bears S. 40¾° W., 2.57 chs. dist., mkd. NM 92 M BT.

Chains

THE DARLING LINE, 92ND MILE

Corner is under an E. and W. fence.
Land, mountainous.
Soil, sandy loam and stony; 3rd rate.
Timber, scattering scrub cedar, pinon, yellow and white pine, spruce and cottonwood; undergrowth, oak, service and locust brush.

THE DARLING LINE, 93RD MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.66 N. 0.8 lks. to the parallel; thence the 93rd Mi. Cor. bears S. 13.8 lks dist.; on this determination the true line bears S. 89° 54' W.

REESTABLISHMENT

Thence from the 92nd Mi. Cor. S. 89° 54' W., on a reestab'ishment of the 93rd mile.
Ascend gradually in valley.

7.00 Base of abrupt ascent, bears NE. and SW.; ascend 200 ft. over broken SE. slope; enter oak brush.

9.90 Small spur, sloping SE.

13.00 Small gulch, course SE.

20.40 Spur, slopes S. 60° E.; descend along S. slope.

28.30 Gulch, course S. 55° E.; ascend 240 ft. over E. slope.

39.60 Spur, slopes S. 65° E.; ascend gradually along S. slope; enter timber bears N. and S.

52.90 Top of high hill, elevation 7420 ft.; descend W. slope.

55.90 Saddle on hill drains NW. and SE.

63.60 Spur, slopes N.; thence along N. slope.

78.20 Ridge, bears N. and SE.; descend W. slope to corner.

79.66 Darling's 93rd Mi. Cor.; a sandstone, 26x12x2 ins., firmly set in mound of stone, mkd. C on N., NM on S., 93 M on E., and 68 on W. face.

chains

The Darling Line, 93rd Mile

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 93, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 7 ins. diam., bears N. 21¼° E., 1.65 chs. dist., mkd. COLO 93 M BT.

A spruce, 16 ins. diam., bears S. 20½° E., 73 lks. dist., mkd. NM 93 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, scattering scrub yellow and white pine and spruce; undergrowth, oak and service brush.

The Darling Line, 94th Mile

RETRACEMENT

Altitude observation on the sun for azimuth, August 27, 1928.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

37 N. 0.8 lks. to the parallel; thence the 94th Mi. Cor. bears S. 57.8 lks. dist.; on this determination the true line bears S. 89° 35′ W.

REESTABLISHMENT

Thence from the 93rd Mi. Cor. S. 89° 35′ W., on a reestablishment of the 94th mile.

Descend 160 ft. over SW. slope, through timber and undergrowth.

23 The Carpenter 239th Mi. Cor. bears North, 36.38 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

10 Gulch, course SE. turning to S.; ascend 70 ft.

80 Spur, slopes SE.; descend 100 ft.

20 Arroyo in canon, course S. 70° E.; ascend 150 ft. over NE. slope.

Chains THE DARLING LINE, 94TH MILE

40.20 Spur, slopes N.; descend NW. slope.

43.90 Small canon, course N. 30° E.; ascend 180 ft. over E. slope.

57.30 Spur, slopes NE.; descend 50 ft. over NW. slope.

64.00 Drain, course N. 55° E.; ascend 170 ft. over E. slope.

76.00 Begin gradual ascent on high ridge.

79.37 Darling's 94th Mi. Cor.; a sandstone, 24x13x6 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 94 M on E., and 68 on W. face;

from which

An old stump hole, bears N. 12° E., 1.38 chs. dist.

Butt of fallen pine tree, bears S. 12° W., 1.14 chs. dist.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins in the ground, with tablet seated in the top marked Mile Corner No. 94, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 12 ins. diam., bears N. 28° W., 90 lks. dist., mkd. COLO 94 M BT.

A pine, 6 ins. diam., bears S. 40½° W., 33 lks. dist., mkd. NM 94 M BT.

Corner stands on high ridge, elevation 7620 ft., and under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, medium thick-yellow and white pine and spruce; undergrowth, oak and service brush.

C O L O R A D O

LAS ANIMAS COUNTY

BEAUBIEN & MIRANDA (or MAXWELL) LA

BEAUBIEN & MIRANDA (or MAXWELL) LAND

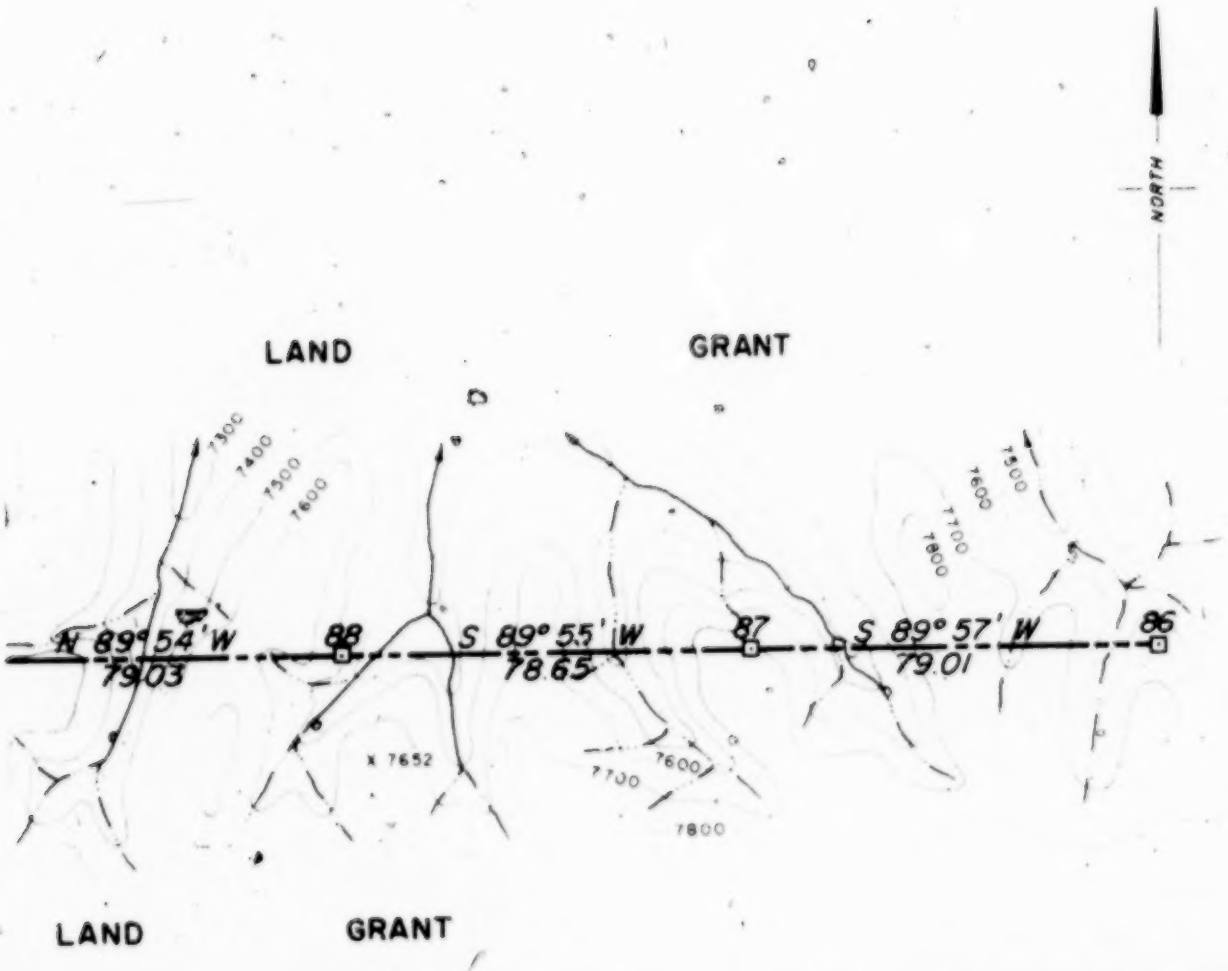
COLFAX COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 95

to

MILE CORNER No. 102

THE DARLING LINE, 95TH MILE

Chains *RETRACEMENT*

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.44 N. 0.8 lks. to the parallel; thence the 95th Mi. Cor. bears S. 27.2 lks. dist.; on this determination the true line bears S. 89° 48′ W.

REESTABLISHMENT

Thence from the 94th Mi. Cor. S. 89° 48′ W., on a reestablishment of the 95th mile.

Descend gradually over SW. slope, through timber and undergrowth.

2.87 The Carpenter 238th Mi. Cor. bears North, 37.41 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

7.70 Head of drain, course SW.; ascend SE. slope.

17.50 Spur, slopes S. 10° E.; descend 200 ft. over SW. slope.

27.20 Canon, course SE. turning to S.; ascend 320 ft. over broken E. slope.

37.30 Small spur, slopes NE.

41.20 Small drain, course NE.

55.00 Ridge, bears N. and S. 15° E.; elevation 7730 ft.; descend 360 ft. over steep W. slope.

72.10 Canon, course S.; ascend steep E. slope.

74.61 The Carpenter 237.1 Mi. Cor. bears North, 37.91 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

77.10 Spur, slopes S.; descend W. slope.

79.44 Darling's 95th Mi. Cor.; a sandstone, 24x8x6 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 95 M on E., and 68 on W. face;

from which

A pine stump, 18 ins. diam., bears N. 5° W., 37 lks., mkd. BT.

A pine stump, 18 ins. diam., bears S. 13° W., 1.10 chs. dist., no marks.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins

Chains

THE DARLING LINE, 95TH MILE

in the ground, with tablet seated in the top marked Mile Corner No. 95, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 6 ins. diam., bears N. 24½° W., 25 lks. dist., mkd. COLO 95 M BT.

A pine, 9 ins. diam., bears S. 52° W., 1.53 chs. dist., mkd. NM 95 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, and spruce; undergrowth, oak and service brush.

THE DARLING LINE, 96TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

9.90 N. 0.8 lks. to the parallel; thence the 96th Mi. Cor. bears S. 31.7 lks. dist.; on this determination the true line bears S. 89° 46' W.

REESTABLISHMENT

Thence from the 95th Mi. Cor. S. 89° 46' W., on a reestablishment of the 96th mile.

Descend 70 ft. over W. slope, through scattering timber and undergrowth.

3.20 Gulch, course S. 10° W.; ascend SE. slope.

8.40 Spur, slopes S.; descend along S. slope.

4.90 Small canon, course SE. turning to S. 60° E.; ascend 250 ft. over broken NE. slope.

1.50 Spur, slopes NE.

3.10 Drain, course N. 55° E.

6.90 Spur, slopes N. 15° E.; descend gradual NW. slope.

3.20 Swale slopes N.; ascend 160 ft. over NE. slope.

Chains

THE DARLING LINE, 96TH MILE

62.90 Ridge, bears NW. and SE., elevation 7760 ft.; descend 150 ft. over broken SW. slope to corner.

72.50 Small gulch, course S. 20° W.

75.50 Spur, slopes S. 30° E.

79.90 Darling's 96th Mi. Cor.; a sandstone, 22x10x8 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 96 M on E., and 68 on W. face;

from which

Butt of fallen pine, bears N. 65° W., 1.46 chs. dist., no marks.

Butt of fallen pine, bears S. 40° W., 38 lks. dist., no marks.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set in concrete base, 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 96, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 10 ins. diam., bears N. 15½° E., 33 lks. dist., mkd. COLO 96 M BT.

A pine, 6 ins. diam., bears S. 62½° E., 99 lks. dist., mkd. NM 96 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy clay and stony; 3rd rate.

Timber, scattering yellow and white pine, and spruce; undergrowth oak and service brush.

THE DARLING LINE, 97TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, August 29, 1928.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.01 N. 0.8 lks. to the parallel; thence the 97th Mi. Cor. bears S. 33.4 lks. dist.; on this determination the true line bears S. 89° 46' W.

THE DARLING LINE, 97TH MILE

REESTABLISHMENT

Thence from the 96th Mi. Cor. S. 89° 46' W., on a reestablishment of the 97th mile.

Descend 50 ft. over SW. slope, through scattering oak brush.

2.48 The Carpenter 236th Mi. Cor. bears North, 38.46 chs. dist.; an iron post; firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

4.30 Gulch, course SE.; ascend 60 ft. over steep E. slope.

10.40 Spur, slopes SE.; descend 80 ft. along S. slope.

23.80 Arroyo in canon, course S. 30° E. turning to S. 70° E.; ascend 340 ft. over broken NE. slope.

36.70 Spur, slopes NE.

48.50 Gulch, course NE.; enter timber, bears N. and S.

72.00 Ridge, bears NW. and SE., elevation 7890 ft.; thence along S. slope.

78.00 Begin gradual descent.

80.01 Darling's 97th Mi. Cor.: a sandstone, 30x8x7 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 97 M on E., and 68 on W. face; a sandstone, 8x6x3 ins., mkd. 97 M, 12 ins. below the surface;

from which

A pine stump, 13 ins. diam., bears N. 27° E., 93 lks. dist., no marks.

A pine stump, 16 ins. diam., bears S. 27° W., 37 lks. dist., mkd. BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 97, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 8 ins. diam., bears N. 51¾° E., 92 lks. dist., mkd. COLO 97 M BT.

A pine, 6 ins. diam., bears S. 32½° E., 1.10 chs. dist., mkd. NM 97 M BT.

Land, mountainous.

Chains

THE DARLING LINE, 97TH MILE

Soil, sandy clay and stony: 3rd rate.
Timber, yellow and white pine; undergrowth, oak brush.

THE DARLING LINE, 98TH MILE

RETRACEMENT

Beginning at the 98th Mi. Cor., as identified and hereinafter d
scribed,
East, on a retracement of the Darling boundary, on a transit li
describing a tangent.

13.60 Altitude observation on the sun for azimuth, October 4, 1927.

80.08 N. 0.8 lks. to the parallel; thence the 97th Mi. Cor. bears N. 20
lks. dist.; on this determination the true line bears S. 89° 51' W.

REESTABLISHMENT

Thence S. 89° 51' W., on a reestablishment of the 98th mile.
Descend 150 ft. over SW. slope, through timber and undergrowth.

2.37 The Carpenter 235th Mi. Cor. bears North, 39.12 chs. dist.; an iro
post, firmly set in ground and mound of stone; I remove th
monument and obliterate the marks on the four bearing trees.

15.90 Arroyo in canon, course SE.; ascend 160 ft. over NE. slope.

40.00 Top of high flat ridge, bears N. and SE., elevation 7890 ft.

46.50 Begin gradual descent along S. slope.

64.30 Divide between Lorencito and Long's Canons, bears N. 20° E. an
S. 20° W., elevation 7830 ft.; descend 130 ft. over W. slope.

73.40 Gulch, course N.; ascend 80 ft. over E. slope.

80.08 Darling's 98th Mi. Cor.; a sandstone, 24x10x5 ins., firmly set in a
mound of stone, mkd. C on N., NM on S., 98 M on E., and 68 o
W. face;
from which
Butt of fallen pine tree, bears N. 18° E., 96 lks. dist., mkd. BT.
A pine stump, 13 ins. diam., bears S. 14° W., 95 lks. dist., mkd
BT.
In place of stone

Chains

The Darling Line, 98th Mile

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 98, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 6 ins. diam., bears N. 24¾° E., 20 lks. dist., mkd. COLO 98 M BT.

A pine, 13 ins. diam., bears S. 48¾° E., 1.27 chs. dist., mkd. NM 98 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, scattering scrub yellow and white pine; undergrowth, oak and service brush.

The Darling Line, 99th Mile

RETRACEMENT

Beginning at the 99th Mi. Cor., as identified and hereinafter described.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

20.84 Hour Angle observation of Polaris for azimuth, Oct. 3, 1927.

20.60 N. 0.8 lks. to the parallel; thence the 98th Mi. Cor. bears N. 56.8 lks. dist.; on this determination the true line bears S. 89° 35′ W.

REESTABLISHMENT

Thence S. 89° 35′ W., on a reestablishment of the 99th mile.

Descend 80 ft. over W. slope, through timber and undergrowth.

2.26 The Carpenter 234th Mi. Cor. bears North, 39.57 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

7.20 Gulch, course N.; thence over very broken N. slope, with spurs and gulches.

12.00 Spur, slopes N.

Chains — THE DARLING LINE, 99TH MILE

17.30 Gulch, course N.

21.70 Spur, slopes N.

31.00 Gulch, course N.

32.80 Spur, slopes N.

37.60 Gulch, course N.

43.00 Spur, slopes N.; descend 120 ft. over NW. slope.

51.30 Arroyo in canon, course N. 5° E.; ascend 220 ft. over steep E. slope

74.60 Spur, slopes N.; descend gentle NW. slope to corner.

79.60 Darling's 99th Mi. Cor.: a sandstone, 21x15x3 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 99 M on E., and 68 on W. face;

from which

A pine tree stump, 16 ins. diam., bears N. 11° E., 26 lks. dist., mkd. BT.

A pine tree stump, 16 ins. diam., bears S. 17¾° W., 28 lks. dist., no marks.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 99, 1868-1925, and build a mound of stone and earth around the monument;

from which

A spruce, 16 ins. diam., bears N. 65¼° E., 1.03 chs. dist., mkd. COLO 99 M BT.

A pine, 5 ins. diam., bears S. 21¾° E., 52 lks. dist., mkd. NM 99 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, and spruce; undergrowth, oak and service brush.

COLORADO AND NEW MEXICO BOUNDARY

THE DARLING LINE, 100TH MILE

RETRACEMENT

Beginning at the 100th Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, September 28, 1927.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

.24 N. 0.8 lks. to the parallel; thence the 99th Mi. Cor. bears N. 16 lks. dist.; on this determination the true line bears S. 89° 53′ W.

REESTABLISHMENT

Thence S. 89° 53′ W., on a reestablishment of the 100th mile.

Descend 170 ft. over steep NW. slope, through timber and undergrowth.

.61 The Carpenter 233rd Mi. Cor. bears North, 40.26 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

.00 Canon, course N.; ascend 210 ft. over steep E. slope.

.10 Spur, slopes N. 54° E.; descend 220 ft. over steep NW. slope.

.40 Arroyo in canon, course N. 5° E. turning to NE.; ascend 390 ft. over broken NE. slope.

.30 Point of small spur slopes S.

.90 Small drain, course S. 80° E.

.40 Ridge, bears N. turning to NE., and S. 25° E., elevation 7880 ft.; begin gradual descent over W. slope.

.24 Darling's 100th Mi. Cor.; a sandstone, 20x10x4 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 100 M on E., and 68 on W. face;

from which

A pine stump, 14 ins. diam., bears S. 8¼° W., 13 lks. dist., mkd. BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 100, 1868-1925, and build a mound of stone and earth around the monument;

Chains

THE DARLING LINE, 100TH MILE

from which

A pine, 12 ins. diam., bears N. 41° E., 99 lks. dist., mkd. COL 100 M BT.

A pine, 11 ins. diam., bears S. 48¾° E., 69 lks. dist., mkd. NM 100 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony: 3rd rate.

Timber, scattering yellow and white pine, and spruce; undergrowth oak and service brush.

THE DARLING LINE, 101ST MILE

RETRACEMENT

Beginning at the 101st Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

76.00 Altitude observation on the sun for azimuth, September 28, 1927.

79.42 N. 0.8 lks. to the parallel; thence the 100th Mi. Cor. bears S. 3 lks. dist.; on this determination the true line bears N. 89° 59′ W.

REESTABLISHMENT

Thence N. 89° 59′ W., on a reestablishment of the 101st mile.

Descend gradual W. slope, through scattering timber and undergrowth.

0.81 The Carpenter 232nd Mi. Cor. bears North, 40.72 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

4.30 Small rim rock, bears NW. and SE.; abrupt descent of 320 ft.

12.30 Gulch, course N. 60° W.

23.00 Spring branch in canon, course N. 20° E.; ascend 80 ft.

25.50 Spur, slopes NE.; descend gentle NW. slope.

31.60 Arroyo in canon, course N. 60° E.; ascend 350 ft. over SE. and S. slope.

chains

THE DARLING LINE, 101ST MILE

37.20 Rim rock, 20 ft. high, bears N. 70° E. and S. 70° W.

48.90 Rim rock, bears NE. and SW.; thence ascend gradually along S. slope.

56.24 The closing cor. of secs. 33 and 34, T. 32 N., R. 19 E., NM P'rin Mer., New Mexico (established prior to the confirmation of the Maxwell Grant); a sandstone, 10x8x3 ins. above ground, firmly set in a mound of stone, mkd. with 3 grooves on E., 3 grooves on W., and CC on S. face;

from which

A pine, 26 ins. diam., bears S. 47° W., 56 lks. dist., mkd. T XXXII R XIX E BT.

A fallen pine, bears S. 72° E., 40 lks. dist., mkd. T XXXII R XIX E. (marks on piece).

75.00 Begin gradual descent along N. slope.

79.42 Darling's 101st Mi. Cor.; a sandstone, 16x10x8 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 101 M on E., and 68 on W. face; a sandstone, 14x8x3 ins., mkd. 101 M. 12 ins. below the surface;

from which

A pine tree stump, bears N. 17½° W., 59 lks. dist., no marks.

A pine tree stump, bears S. 15° E., 59 lks. dist., no marks.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 101, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 7 ins. diam., bears N. 67¾° E., 73 lks. dist., mkd. COLO 101 M BT.

A pine, 7 ins. diam., bears S. 26° E., 48 lks. dist., mkd. NM 101 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, scattering yellow and white pine; undergrowth, oak and service brush.

The Darling Line, 102nd Mile

Chains

RETRACEMENT

Beginning at the 102nd Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, September 27, 1927.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.33 N. 0.8 lks. to the parallel; thence the 101st Mi. Cor. bears N. 14° lks. dist.; on this determination the true line bears S. 89° 54' W.

REESTABLISHMENT

Thence S. 89° 54' W., on a reestablishment of the 102nd mile. Along N. slope, through timber and undergrowth.

0.67 The Carpenter 231st Mi. Cor. bears North, 41.04 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

13.00 Spur, slopes N.; abrupt descent of 330 ft. over W. slope.

23.80 Canon, course N. 15° E.; ascend 370 ft. over steep E. slope.

30.80 Rim rock, bears N. and SW.

46.90 Begin gradual descent along N. slope.

79.33 Darling's 102nd Mi. Cor.; a sandstone, 26x10x4 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 102 M on E., and 68 on W. face; a sandstone, 9x8x2 ins., mkd. 102 M, 12 ins. below the surface;

from which

A spruce, 42 ins. diam., bears S. 13° E., 97 lks. dist., mkd. NM 102 M BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 102, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 7 ins. diam., bears N. 20° E., 23 lks. dist., mkd. COLO 102 M BT.

A pine, 8 ins. diam., bears S. 49½° E., 75 lks. dist., mkd. NM 102 M BT.

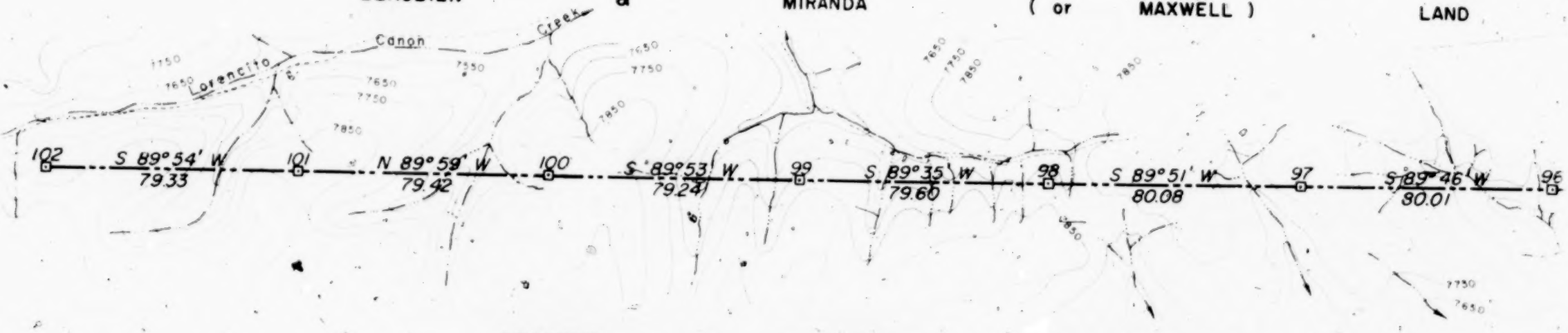
THE DARLING LINE, 102ND MILE

Corner is under an E. and W. fence.
Land, mountainous.
Soil, sandy loam and stony; 3rd rate.
Timber, yellow and white pine, and spruce; undergrowth, oak and service brush.

C O L O R A D O

LAS ANIMAS COUNTY

BEAUBIEN & MIRANDA (or MAXWELL) LAND



BEAUBIEN & MIRANDA (or MAXWELL) LAND GR

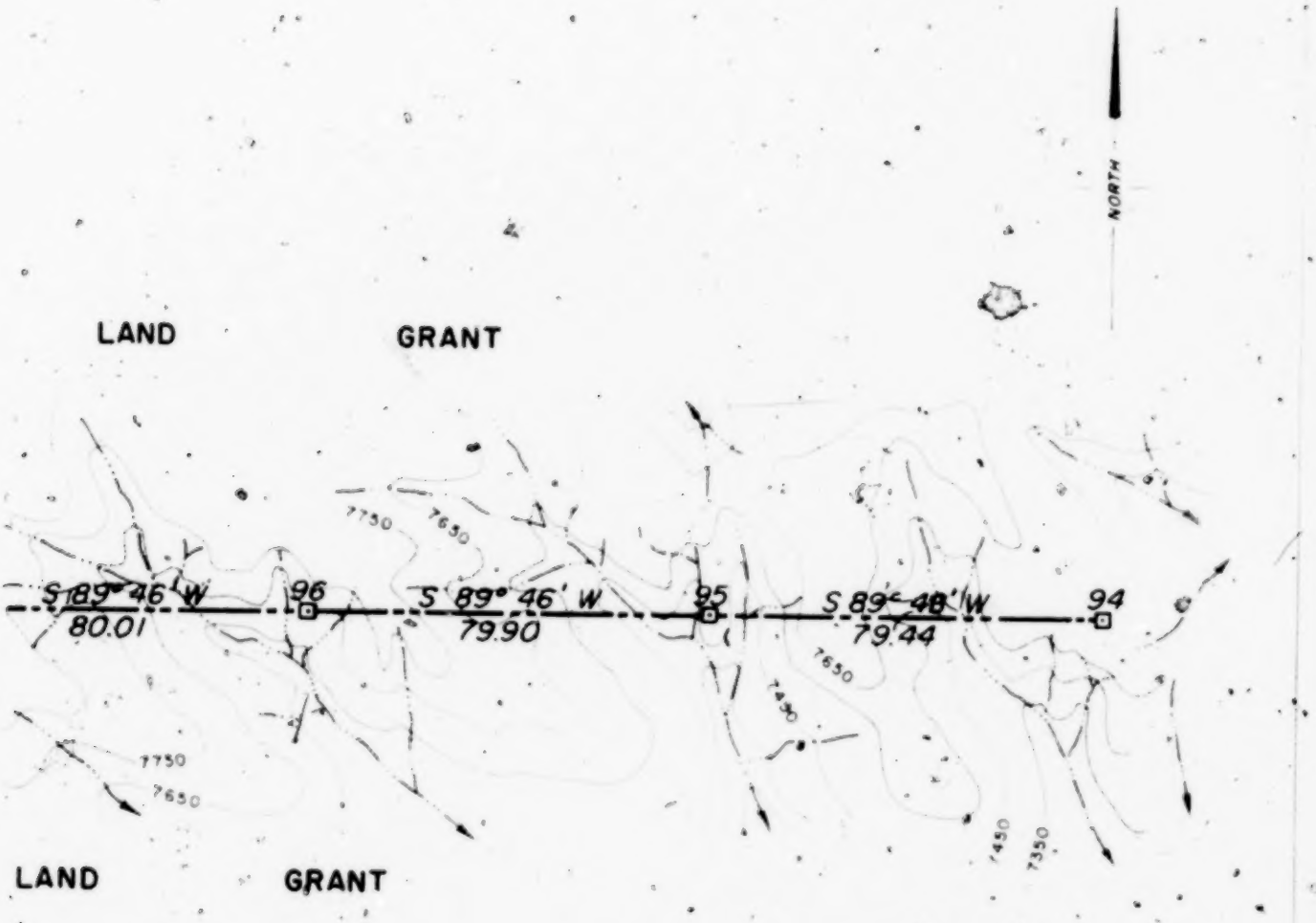
COLFAX COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 103

to

MILE CORNER No. 110

The Darling Line, 103rd Mile

Chains

RETRACEMENT

Beginning at the 103rd Mi. Cor., as identified and hereinafter scribed,

East, on a retracement of the Darling boundary on a transit describing a tangent.

15.10 Hour Angle observation of Polaris for azimuth, September 24, 1

79.93 N. 0.8 lks. to the parallel; thence the 102nd Mi. Cor. bears N. 7 lks. dist.; on this determination the true line bears S. 89° 27' W

REESTABLISHMENT

Thence S. 89° 27' W., on a reestablishment of the 103rd mile. Descend gradually along gentle N. slope, through scattering timb and undergrowth.

0.92 The Carpenter 230th Mi. Cor. bears North, 41.41 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument a obliterate the marks on the four bearing trees.

4.20 Abrupt descent of 80 ft. over W. slope.

9.30 Gulch, course N.; ascend 70 ft. over E. slope.

12.00 Begin gradual descent along N. slope.

31.60 Abrupt descent of 100 ft. over W. slope.

36.50 Gulch, course N.; ascend 80 ft. over E. slope.

41.70 Spur, slopes N.; descend 60 ft. over NW. slope.

50.00 Enter Lorencito Canon.

55.40 Lorencito Canon Creek, course E., turning to S. 60° E.; elevation 7740 ft.

58.00 Leave Creek, course from N. 60° E., turning to E.

60.60 Leave Lorencito Canon; ascend NE. slope.

65.00 Spur, slopes NE.; descend 50 ft. over NW. slope.

70.90 Arroyo in small canon, course NE.; ascend 80 ft. to corner, on broken SE. slope.

74.16 The Carpenter 229.075 Mi. Cor. bears North, 42.28 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

The Darling Line, 103rd Mile

7978 Darling's 103rd Mi. Cor.: a sandstone, 20x12x4 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 103 M on E., and 68 on W. face;

from which

A pine, 29 ins. diam., bears N. 40½° E., 1.55 chs. dist., mkd. C 103 M BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 103, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 11 ins. diam., bears N. 68¾° E., 1.34 chs. dist., mkd. COLO 103 M BT.

A pine, 6 ins. diam., bears S. 40½° W., 34 lks. dist., mkd. NM 103 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, scattering yellow and white pine, spruce, aspen and cottonwood; the aspen and cottonwood are in Lorencito Canon; undergrowth, oak and service brush.

The Darling Line, 104th Mile

RETRACEMENT

Beginning at the 104th Mi. Cor., as identified and hereinafter described,

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

7979 Altitude observation on the sun for azimuth, September 24, 1927.

7981 N. 0.8 lks. to the parallel; thence the 103rd Mi. Cor. bears S. 63.4 lks. dist.; on this determination the true line bears N. 89° 33′ W.

THE DARLING LINE, 104TH MILE

Chains *REESTABLISHMENT*

Thence N. 89° 33′ W., on a reestablishment of the 104th mile.
Ascend 410 ft. over broken SE. slope, through scattering timber a
undergrowth.

32.90 Rim rock 10 ft. high, bears N. and S.; begin gradual ascent of 16
near top of spur.

44.36 The Carpenter 228.3 Mi. Cor. bears North, 42.14 chs. dist.; a
– iron post, firmly set in a mound of stone; I remove this monume
and obliterate the marks on the three bearing trees.

79.81 Darling's 104th Mi. Cor.: a sandstone, 22x12x4 ins., firmly set
mound of stone, mkd. C on N., NM on S., 104 M on W., and
on E. face;
from which
A fallen and rotted pine, bears N. 45° E., 60 lks. dist.
A spruce, 18 ins. diam., bears S. 35° W., 11 lks. dist., marks co
pletely grown over; remove the overgrowth and find mks. N
104 M BT.
A sandstone, 20x10x5 ins., loosely set in a small mound of stone
marks, bears S. 1° 45′ E., 96.5 lks. dist.
In place of the first stone
Construct a concrete monument, in a form 8x14x36 ins., set 18 i
in the ground, with tablet seated in the top marked Mile Cor
No. 104, 1868-1925, and build a mound of stone and earth arou
the monument;
from which
A pine, 18 ins. diam., bears N. 64½° E., 2.50 chs. dist., m
COLO 104 M BT.
A pine, 8 ins. diam., bears South, 89 lks. dist., mkd. NM 10
BT.
Corner is under an E. and W. fence.
Land, mountainous.
Soil, sandy clay and stony; 3rd rate.
Timber, scattering yellow and white pine, spruce and aspen; und
growth, oak and service brush.

The Darling Line, 105th Mile

chains

RETRACEMENT

Beginning at the 105th Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, September 20, 1927.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

78.87 N. 0.8 lks. to the parallel; thence the 104th Mi. Cor. bears S. 85.3 lks. dist.; on this determination the true line bears N. 89° 23' W.

REESTABLISHMENT

Thence N. 89° 23' W., on a reestablishment of the 105th mile.
Ascend gradually along top of spur, through timber and undergrowth.

10.20 Top of high spur, slopes N. 85° E., elevation 8480 ft.; descend 310 ft. over NW. slope.

10.40 Rim rock, bears N. 20° W. and S.

19.20 Gulch, course N. 30° W.; ascend 120 ft. over NE. slope.

28.00 Low spur, slopes N.; descend NW. slope.

33.40 Gulch, course N. 20° E.; ascend 340 ft. over E. slope to corner.

36.81 The Carpenter 227th Mi. Cor. bears North, 41.40 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

38.87 Darling's 105th Mi. Cor.; a sandstone, 14x8x7 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 105 M on E., and 68 on W. face;

from which

A spruce, 18 ins. diam., bears N. 28° W., 8 lks. dist., mkd. C BT.
A pine, 17 ins. diam., bears S. 12¼° W., 34 lks. dist., mkd. NM 105 BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground; with tablet seated in the top marked Mile Corner No. 105, 1868-1925, and build a mound of stone and earth around the monument;

from which

Chains THE DARLING LINE, 105TH MILE

A pine, 9 ins. diam., bears N. 7¼ E., 99 lks. dist., mkd. C 105 M BT.

A pine, 13 ins. diam., bears S. 38¾ W., 1.53 chs. dist., mkd. 105 M BT.

Corner is under an E. and W. fence and on a high spur, slo N. 15 E., elevation 8650 ft.

Land, mountainous.

Soil, sandy clay and stony; 3rd rate.

Timber, yellow and white pine, spruce and aspen; undergro oak and service brush.

THE DARLING LINE, 106TH MILE

RETRACEMENT

Beginning at the 106th Mi. Cor., as identified and hereinafter scribed,

East, on a retracement of the Darling boundary, on a transit describing a tangent,

76.50 Altitude observation on the sun: for azimuth, September 20, 1927

79.47 N. 0.8 lks. to the parallel; thence the 105th Mi. Cor. bears S. lks. dist.; on this determination the true line bears N. 89° 23' W

REESTABLISHMENT

Thence N. 89° 23' W., on a reestablishment of the 106th mile.

Descend 190 ft. over W. slope, through timber and undergrowth

16.00 Gulch, course N. 20° W.; ascend gentle NE. slope.

18.80 Small spur, slopes N.; descend gentle NW. slope.

21.50 Head of drain, course N.; ascend 190 ft. over NE. slope.

46.00 Divide between the Las Animas and Canadian Rivers, bears N. 60° W. and S. 30° E., turning to S. 60° E.; elevation 865 descend very gradual W. slope.

49.60 Saddle at head of draw, course S.; ascend 260 ft. over gradual slope to corner.

69.21 The Carpenter 226th Mi. Cor. bears North, 40.60 chs. dist.; an post, firmly set in a mound of stone; I remove this monument a obliterate the marks on the two bearing trees.

THE DARLING LINE, 106TH MILE

Darling's 106th Mi. Cor.: a sandstone, 18x8x3 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 106 M on E., and 6S on W. face; partly broken on W. side;

from which

A pine, 18 ins. diam., bears N. 4½ W., 82 lks. dist., mkd. 106 BT.

A pine, 11 ins. diam., bears S. 43¾ E., 48 lks. dist., mkd. NM 106 BT.

These two trees have been mkd. in recent years, scribed with knife and are not the original trees.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 106, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 10 ins. diam., bears N. 14½ W., 1.00 ch. dist., mkd. COLO 106 M BT.

A pine, 10 ins. diam., bears S. 40½ W., 94 lks. dist., mkd. NM 106 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy clay and stony; 3rd rate

Timber, yellow and white pine, spruce and aspen; undergrowth, oak and service brush.

THE DARLING LINE, 107TH MILE

RETRACEMENT

Beginning at the 108th Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, September 15, 1927.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

N. 0.8 lks. to the parallel; the 107th Mi. Cor. has become obliterated.

Hour Angle observation of Polaris for azimuth, September 20, 1927.

N. 3.0 lks. to the parallel; thence the 106th Mi. Cor. bears S. 94.2 lks. dist.; on this determination the true line bears N. 89° 40' W.

THE DARLING LINE, 107TH MILE

Chains

REESTABLISHMENT

Thence N. 89° 40' W., on a reestablishment of the 107th mile. Ascend gradual E. slope, through timber and undergrowth.

0.70 Divide between the Las Animas and Canadian Rivers, bears N. 80° E. and S. 75° W., elevation 8890 ft.; descend NW. slope.

20.10 Head of small gulch, course N. 10° E.; ascend NE. slope.

32.20 Top of NE. slope; thence along N. slope.

*69.64 The Carpenter 225th Mi. Cor. bears North, 40.52 chs. dist., an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the three bearing trees.

80.85 The proportional point; unable to identify Darling's 107th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Cor. No. 107, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 8 ins. diam., bears N. 51½° W., 63 lks. dist., mkd. Cor. 107 M BT.

A pine, 8 ins. diam., bears S. 64½° W., 43 lks. dist., mkd. Cor. 107 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, spruce and aspen; undergrowth, oak and service brush.

THE DARLING LINE, 108TH MILE

REESTABLISHMENT

N. 89° 40' W., on a reestablishment of the 108th mile.

Ascend gradual NE. slope, through timber and undergrowth.

57.28 The Carpenter 224.15 Mi. Cor. bears North, 40.29 chs. dist., an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the three bearing trees.

The Darling Line, 108th Mile

Divide between the Las Animas and Canadian Rivers, bears NW and S. 70° E., elevation 9190 ft.; descend gradually along S. slope.

Darling's 108th Mi. Cor.: a sand-stone, 24x7x3 ins., firmly set in a mound of stone, mkd. C on N., NM on S., 108 M on E., and 68 on W. face;

from which

A pine, 16 ins. diam., bears N. 19° W., 30 lks. dist., mkd. 108 BT. This tree has been mkd. in recent years and is not an original tree.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 108, 1868-1925, and build a mound of stone and earth around the monument;

from which

A pine, 11 ins. diam., bears N. 35° W., 1.29 chs. dist., mkd. COLO 108 M BT.

A pine, 15 ins. diam., bears S. 31° E., 64 lks. dist., mkd. NM 108 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, spruce and aspen; undergrowth, scattering oak brush.

The Darling Line, 109th Mile

RETRACEMENT

Beginning at the 109th Mi. Cor., as identified and hereinafter described; altitude observation on the sun for azimuth, September 14, 1927.

East, on a retracement of the Darling boundary, on a transit line describing a tangent.

N. 0.8 lks. to the parallel; thence the 108th Mi. Cor. bears N. 4.496 chs. dist.; on this determination the true line bears S. 86° 44' W.

THE DARLING LINE, 109TH MILE

Chains *REESTABLISHMENT*

Thence S. 86° 44′ W., on a reestablishment of the 109th mile. Along S. slope, through timber and undergrowth.

8.50 Head of drain, course S.; ascend SE. slope.

25.50 Spur, slopes S.; descend 170 ft. over W. slope.

43.20 The Carpenter 223.325 Mi. Cor. bears North, 42.76 chs. dist. iron post, firmly set in ground and mound of stone; I remove monument and obliterate the marks on the four bearing trees.

54.80 Head of drain, course S. 10° E.; ascend SE. slope.

59.90 Spur ridge, bears N. 30° E. and SW.; descend 140 ft. over W. slo

75.50 Enter small park.

78.95 Darling's 109th Mi. Cor.: a sandstone, 28x8x4 ins., firmly set i small mound of stone, mkd. C on N., NM on S., 109 on E., a 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 in the ground, with tablet seated in the top marked Mile Cor No. 109, 1868-1925, and build a mound of stone and earth aro the monument;

from which

A white pine, 6 ins. diam., bears N. 28½° W., 1.04 chs. dist., m COLO 109 M BT.

A white pine, 8 ins. diam., bears S 56¾° W., 3.04 chs. dist., m NM 109 M BT.

Corner is under an E. and W. fence.

This fence follows the boundary from the 90th Mi. Cor. to the 10 Mi. Cor.; it is near the boundary from the Raton-Trinidad H way (80 + 48 Chs.) to the 90th Mi. Co it follows near boundary from the 109th Mi. Cor. to the 10th Mi. Cor., t bears away from the boundary to the S.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, and aspen; undergrowth, oak service brush.

THE DARLING LINE, 110TH MILE

RETRACEMENT

Chains

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

0.45 Altitude observation on the sun for azimuth, August 2, 1927.

79.91 N. 0.8 lks. to the parallel; thence the 110th Mi. Cor. bears S. 42 lks. dist.; on this determination the true line bears S. 89° 42' W.

REESTABLISHMENT

Thence from the 109th Mi. Cor. S. 89° 42' W., on a reestablishment of the 110th mile.

Descend 40 ft. over W. slope, through scattering oak brush in small park.

2.40 Enter timber, bearing NE. and SW.

2.90 Gulch, course S. 30° W.; ascend 110 ft. over E. slope.

11.60 Spur, slopes S.; descend 60 ft. over gradual SW. slope.

22.50 Small gulch, course SW.; thence along SW. slope.

30.17 The Carpenter 222.5 Mi. Cor. bears North, 45.08 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

Leave timber and undergrowth, bearing N. 70° W. and S.

34.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 109 + 34 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A pine, 21 ins. diam., bears N. 4° W., 1.68 chs. dist., mkd. WP COLO BT.

A white pine, 8 ins diam., bears S. 73¾° E., 3.58 chs. dist., mkd. WP NM BT.

37.40 Arroyo in small canon, course S. 60° E.; ascend 140 ft. over E. slope.

41.80 Enter timber and undergrowth, bears NW. and SE.

47.60 Top of high spur ridge, bears N. and S., elevation 9050 ft.; descend 260 ft. over broken SW. slope.

48.50 Gulch, course S. 60° W.

Chains

THE DARLING LINE, 110TH MILE

70.70 Leave timber, bearing N. and S.

74.90 Old road, bears NW. and SE.

77.30 Arroyo in Red River Canon, near head of the Canadian River, course SE.; ascend 40 ft. to corner.

79.91 Darling's 110th Mi. Cor.: a sandstone, 24x20x3 ins., firmly set in a small mound of stone, mkd. NM on S., and 110 on E. face, with indistinct mks. on N. face and no mks. on W. face;

from which

A pine, 18 ins. diam., bears S. 4° E., 55 lks. dist., old blaze covered 23 to 25 years, no mks.

In place of stone

Set a sandstone, 24x13x10 ins., in a concrete base, 16 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 110, 1868-1925, and build a mound of stone around the monument;

from which

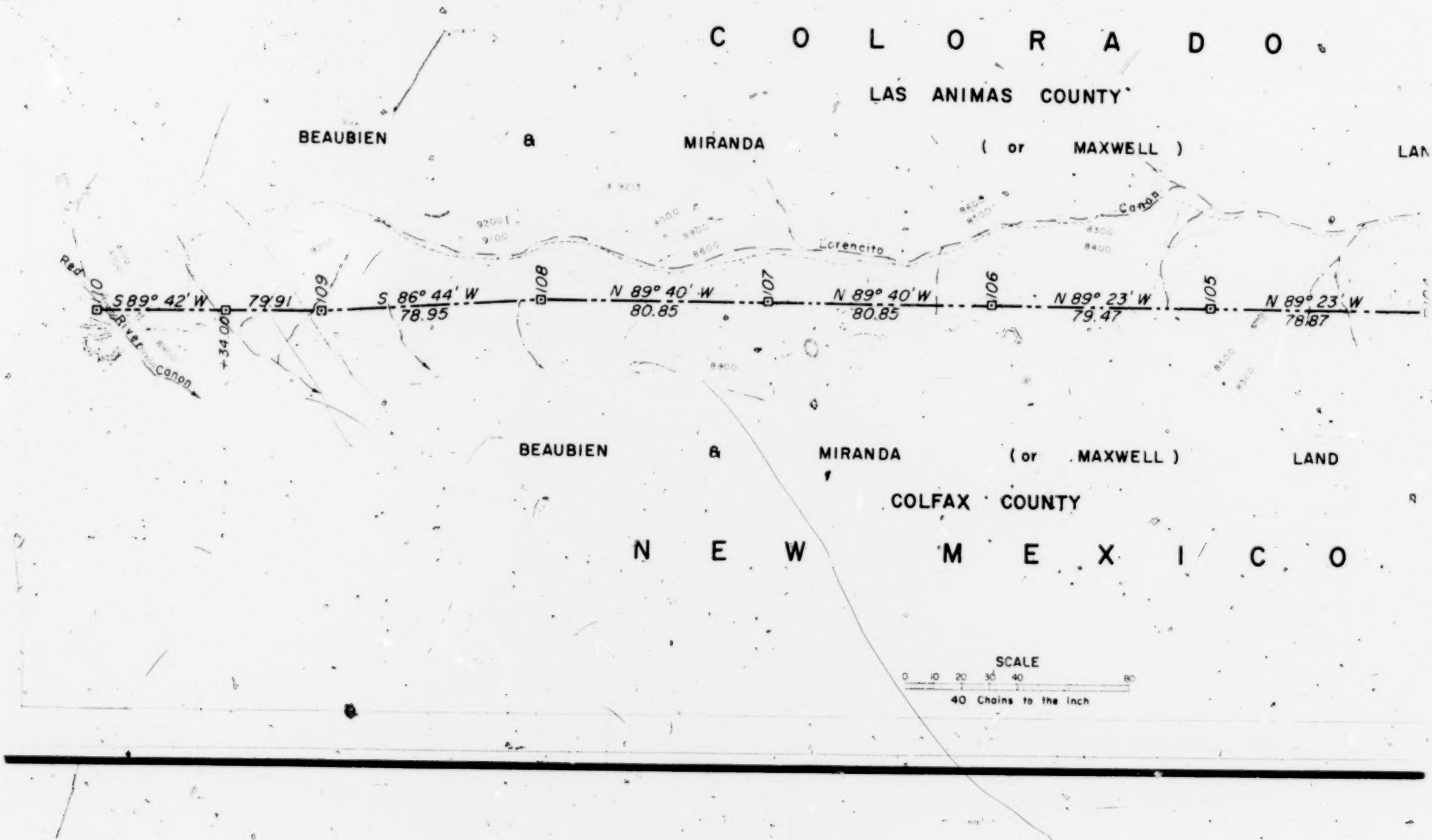
A pine, 40 ins. diam., bears N. 70° W., 2.77 chs. dist., mkd. COLO 110 M BT.

A white pine, 7 ins. diam.; bears S. 37½° E., 1.42 chs. dist., mkd. NM 110 M BT.

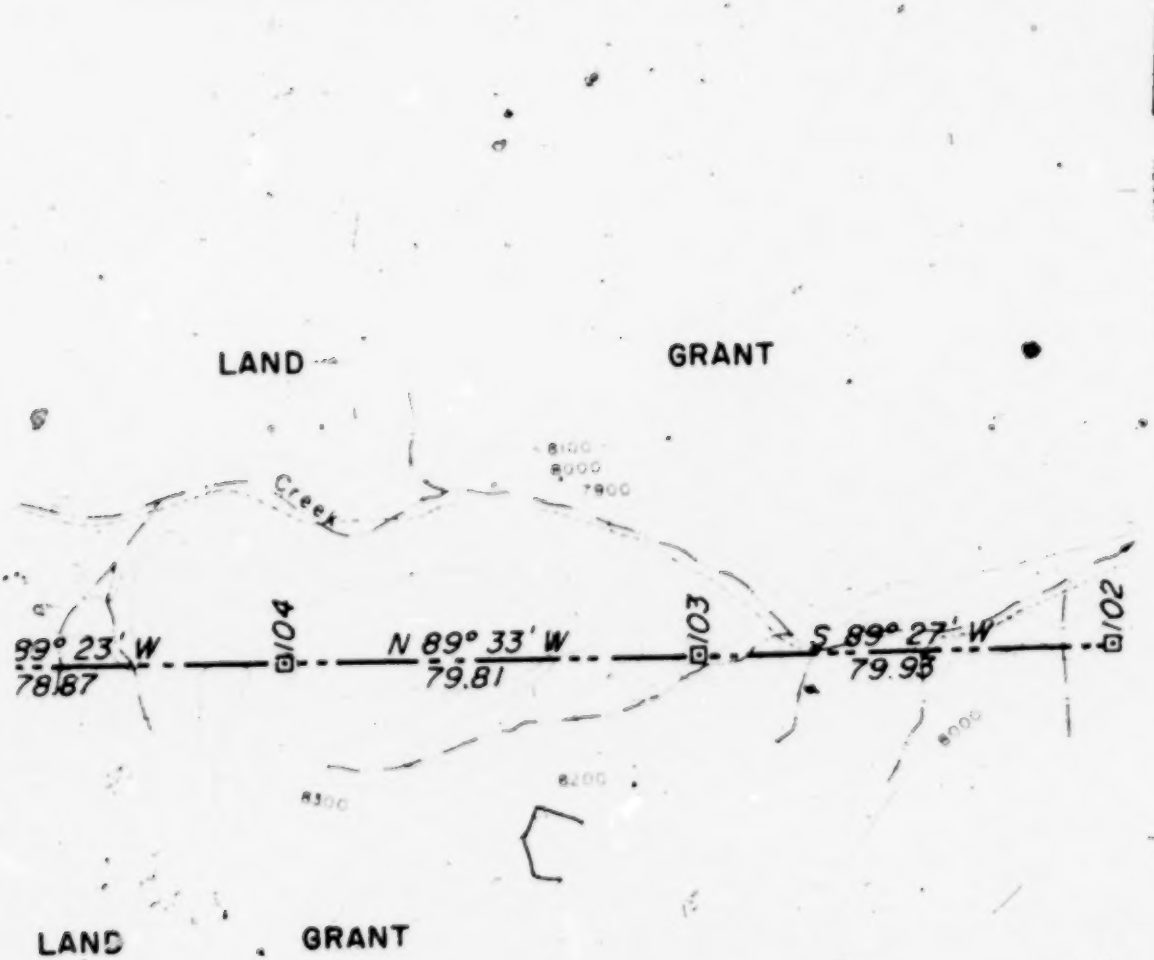
Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, and aspen; undergrowth, oak and service brush.



C O L O R A D O
LAS ANIMAS COUNTY
BEAUBIEN & MIRANDA (or MAXWELL) LAN
Red River Canon
Lorencito Canon
S 89° 42' W
79.91
S 86° 44' W
78.95
N 89° 40' W
80.85
N 89° 40' W
80.85
N 89° 23' W
79.47
N 89° 23' W
78.87
+34.00
BEAUBIEN & MIRANDA (or MAXWELL) LAND
COLFAX COUNTY
N E W M E X I C O
SCALE
0 10 20 30 40 80
40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 111

to

MILE CORNER No. 121

THE DARLING LINE, 111TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

81.61 N. 0.8 lks. to the parallel, thence the 111th Mi. Cor. bears N. 62 chs. dist.; altitude observation on the sun for azimuth, July 2 1927, on this determination the true line bears N. 85° 38' W.

REESTABLISHMENT

Thence from the 110th Mi. Cor. N. 85° 38' W., on a reestablishment of the 111th mile.

Ascend along gradual N. slope, through timber and undergrowth.

15.70 Wire fence, bears N. 34° E. and S. 31° W.

37.96 A sandstone, 16x10x6 ins. above ground, firmly set, bears S. 7.5 lks. dist., mkd. C on N., NM on S., and BT Mc 1 on W. face.

Begin gradual descent along N. slope.

58.70 Drain, course N.; begin gradual ascent.

67.21 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Cor. No. 110 + 67.21 Chs., 1868-1925; elevation 9056 ft.;

from which

A white pine, 10 ins. diam., bears N. 23½° W., 1.08 chs. dist., mkd. WP COLO BT.

A white pine, 15 ins. diam., bears S. 28° W., 1.10 chs. dist., mkd. WP NM BT.

The Carpenter 221st Mi. Cor. bears North, 40.57 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the Carpenter marks COLO-NM-221 M from this monument and literate the marks on the two bearing trees. I did not remove the monument as it is a U. S. Geological Survey Bench Mark stamped 8952; published elevation 8,952.987 ft.

81.87 Darling's 111th Mi. Cor.: a sandstone, 16x12x3 ins., firmly set in mound of stone, top broken off, visible markings M on S., 111 on E., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Cor.

Chains

THE DARLING LINE, 111TH MILE

No. 111, 1868-1925, and build a mound of stone around the monument;

from which

A white pine, 6 ins. diam., bears N. 10° W., 1.22 chs. dist., mkd. COLO 111 M BT.

A white pine, 16 ins. diam., bears S. 62¾° W., 91.5 lks. dist., mkd. NM 111 M BT.

Land, mountainous.

Soil, sandy loam; 3rd rate.

Timber, yellow and white pine, spruce, and aspen; undergrowth, oak and service brush.

THE DARLING LINE, 112TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth July 26, 1927.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

3.62 N. 0.8 lks. to the parallel; thence the 112th Mi. Cor. bears N. 58.9 lks. dist.; on this determination the true line bears N. 89° 30' W.

REESTABLISHMENT

Thence from the 111th Mi. Cor. N. 89° 30' W., on a reestablishment of the 112th mile.

Ascend gradually along gentle N. slope, through timber and undergrowth.

11.00 Begin gradual descent.

14.00 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 111 + 14 Chs., 1868-1925, and build a mound of stone around the monument; elevation 9109 ft.;

from which

A pine, 12 ins. diam., bears N. 48° W., 11 lks. dist., mkd. WP COLO BT.

A white pine, 8 ins. diam., bears S. 45½° W., 1.00 ch. dist., mkd. WP NM BT.

Chains THE DARLING LINE, 112TH MILE

14.82 Mail route, Tercio, Colorado, to Vermejo Park, New Mexico, bear N. 50 E. and SW.

15.43 Telephone line, bears N. 29 E. and S. 32½ W

23.30 Enter open park.

25.00 Dry lake bed, bears N. about 3 chs. dist.; begin gradual ascent.

30.58 A U. S. Geological Survey Bench Mark bears North, 51.43 chs. dist. a bronze tablet seated in a solid sandstone outcrop, stamped 904 published elevation 9041.730 ft.

35.00 Leave park, enter dense timber and undergrowth, bears N. and S

50.80 Ridge, bears NW. and SE.; descend 280 ft. over steep W. slope.

65.47 The Carpenter 220th Mi. Cor. bears North, 39.09 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the four bearing trees.

67.90 Arroyo in canon, course S.; ascend 150 ft. over E. slope.

69.30 Old trail, bears N. and S.

70.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corr. No. 111 + 70 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A white pine, 15 ins. diam., bears N. 11½ W., 76 lks. dist., mkd. WP COLO BT.

A white pine, 7 ins. diam., bears S. 74 W., 39 lks. dist., mkd. WP NM BT.

78.62 Darling's 112th Mi Cor.; a sandstone, 16x10x7 ins., firmly set in a small mound of stone, mkd. C on N., NM on S., 112 M on E., and 1868 on W. face.

In place of stone

Set a granite stone, 22x14x10 ins., in a concrete base, 18 ins. in the ground, with tablet seated in top of stone marked Mile Corr. No. 112, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 6 ins. diam., bears N. 2 E., 89.5 lks. dist., mkd. CO 112 M BT.

Chains

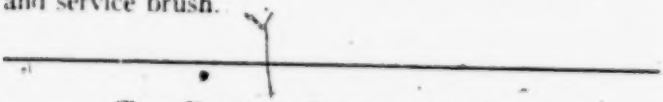
THE DARLING LINE, 112TH MILE

A pine, 8 ins. diam., bears S. 88¾ E., 81 lks. dist., mkd. NM 112 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, spruce and aspen; undergrowth, oak and service brush.



THE DARLING LINE, 113TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

81.61 N. 0.8 lks. to the parallel; thence the 113th Mi. Cor. bears N. 2.763 chs. dist.; on this determination the true line bears N. 88° 04' W.

REESTABLISHMENT

Thence from the 112th Mi. Cor. N. 88° 04' W., on a reestablishment of the 113th mile.

Ascend abrupt E. slope 250 ft., through scattering timber and undergrowth.

2.50 Enter dense timber; leave oak brush, bearing N. and S.

8.40 Spur, slopes S. 30° E.; thence along S. slope.

12.00 Head of drain, course S.

16.50 Six wire fence, bears N. 12° W. and S. 12° E.

17.20 Spur, slopes S.; elevation 9260 ft.; descend gradual W. slope.

31.00 Canon, course S. 50° W.; ascend SE. slope.

38.90 Spur, slopes S.; thence across swale sloping S.

42.30 The Carpenter 219 Mi. Cor. bears North, 37.70 chs. dist.; an iron post, firmly set in ground and mound of stone: I remove this monument and obliterate the marks on the three bearing trees.

43.00 Set a granite stone, 28x27x12 ins., in a concrete base, 20 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 112 + 43 Chs., 1868-1925, and build a mound of stone around the monument;

Chains THE DARLING LINE, 113TH MILE

from which

A pine, 8 ins. diam., bears N. 51¾° E., 1.69 chs. dist., mkd. WP COLO BT.

A pine, 6 ins. diam., bears S. 56° E., 2.35 chs. dist., mkd. WP NM BT.

44.70 Spur, slopes S.; descend 420 ft. over brushy SW. slope.

65.40 Gulch; course SW. turning to S. 60° W.; ascend SE. slope.

68.90 Spur, slopes S. 40° W.; descend 130 ft. over steep W. slope.

74.10 Spring branch in canon, course S., elevation 8760 ft.; ascend 110 ft. over steep E. slope.

81.66 Darling's 113th Mi. Cor.; a sandstone, 26x12x8 ins., firmly set in a small mound of stone, mkd. COLO on N., NM on S., 113 on E. and indistinct marks on W. face;

from which

A pine, 20 ins. diam., bears N. 36¼° W., 45 lks. dist., mkd. 113 M BT.

A pine, 24 ins. diam., bears S. 4¼° E., 1.03 chs. dist., mkd. 113 M BT.

These trees show a ring count of 23 to 26 years and are not the original bearing trees.

In place of stone

Set a sandstone, 32x12x12 ins., in a concrete base, 20 ins. in the ground with tablet seated in top of stone marked Mile Corr No. 113, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 7 ins. diam., bears N. 44½° E. 30 lks. dist., mkd. COL 113 M BT.

A pine, 7 ins. diam., bears S. 64½° E., 66 lks. dist., mkd. NM 113 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, intermittent, dense and scattering yellow and white pine, spruce, and aspen; undergrowth, oak and service brush.

THE DARLING LINE, 114TH MILE

Chains

RETRACEMENT

Altitude observation on the sun for azimuth, August 9, 1927. West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 114th Mi. Cor. has become obliterated.

147.51 N. 2.7 lks. to the parallel; thence the Darling Astronomical Monument No. 4 bears N. 2.626 chs. dist.; on this determination the true line bears N. 88° 59' W.

REESTABLISHMENT

Thence from the 113th Mi. Cor. N. 88° 59' W., on a reestablishment of the 114th mile.

Ascend 70 ft. over SE. slope, through timber and undergrowth.

9.20 Spur, slopes S. 55° E.; thence along S. slope.

21.00 Small canon, course SE.; ascend 120 ft. over NE. slope.

32.50 Begin descent of gradual W. slope to saddle.

34.00 Saddle at head of small drain, course N. 10° E.; ascend E. slope.

35.00 Set a sandstone, 32x12x10 ins., in a concrete base, 20 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 113 + 35 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A pine, 8 ins. diam., bears N. 70° E., 40 lks. dist., mkd. WP COLO BT.

A pine, 7 ins. diam., bears S. 51° E., 38 lks. dist., mkd. WP NM BT.

37.20 Short spur, slopes SE.; descend 190 ft. over steep SW. slope.

41.10 Sandstone bluff, 60 ft. high.

44.70 Arroyo in canon, course S.; ascend 270 ft. over SE. slope.

54.15 The Carpenter 218th Mi. Cor. bears North, 36.37 chs. dist.; an iron post, firmly set in a mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

68.70 Spur, slopes SE.; descend 60 ft. over SW. slope.

Chains THE DARLING LINE, 114TH MILE

73.80 Arroyo in canon, course S. turning to S. 27° E.; ascend 40 ft. over SE. slope to corner.

77.71 The proportional point; unable to identify Darling's 114th Mi. Cor. Set a sandstone, 36x16x8 ins., in a concrete base, 22 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 114, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 12 ins. diam., bears N. 57° E., 1.28 chs. dist., mkd. COLO 114 M BT.

A yellow pine, 8 ins. diam., bears S. 12½° E., 1.51 chs. dist., mkd. NM 114 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, spruce, and aspen; undergrowth, oak and service brush.

THE DARLING LINE, 115TH MILE

REESTABLISHMENT

N. 88° 59′ W., on a reestablishment of the 115th mile.

Ascend 410 ft. over steep SE. slope, through timber and undergrowth.

18.00 Top of high ridge, bears N. 27° E. and S. 27° W., elevation 9520 ft. descend 1000 ft. over steep W. slope.

40.00 Thence along S. side of gulch, course W.

46.67 The Carpenter Astronomical Monument No. 5 bears North, 36.0 chs. dist.; a sandstone, 12x14 ins. x 6 ft., firmly set in ground and mound of stone; I obliterate the marks and bury the stone

60.00 Leave timber and undergrowth, bears N. and S.

63.26 The Carpenter Observing Station No. 5 bears South, 1.04 chs. dist.

66.66 The Carpenter 217th Mi. Cor. bears North, 35.52 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the four bearing trees.

Chains

THE DARLING LINE, 115TH MILE

69.84 Darling's Astronomical Monument No. 4; a sandstone, 46x16x16 ins., firmly set, mkd. NEW MEXICO on S., 1868 on E., and NM on W. face.

In place of stone

Reset same stone, 30 ins. in the ground, in 12 ins. of concrete with tablet seated in top of stone marked Mile Corner No. 114 + 69.84 Chs., 1868-1925, and build a mound of stone around the monument;

from which

Highest point on sandstone cliff bears N. 63° 27′ W.

Three conical peaks, bearing:

S. 39° 04′ W. to right peak,

S. 27° 05′ W. to middle peak,

S. 19° 15′ W. to left peak.

This corner stands on W. side of old wagon trail from Tercio, Colo., to Costilla, New Mex., bearing N. and S., now abandoned; the monument stands under an E. and W. fence.

RETRACEMENT

Altitude observation on the sun for azimuth, August 12, 1927.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

8.12 N. 0.0 lks. to the parallel; thence the 115th Mi. Cor. position bears N. 0.7 lks. dist.; on this determination the true line bears N. 89° 57′ W.

REESTABLISHMENT

Thence from Astronomical Monument No. 4 N. 89° 57′ W., continuing the reestablishment of the 115th mile.

4.85 Small stream, 1 lk. wide, in deep arroyo, course S., elevation 8530 ft.; ascend 30 ft. to corner over NE. slope.

8.12 Darling's 115th Mi. Cor. position; a small mound of stone, none marked;

from which

A pine, 16 ins. diam., bears S. 11¾° E., 42 lks. dist., mkd. NM 115 M BT.

This tree has a ring count of 53 years to the markings.

Chains

THE DARLING LINE, 115TH MILE

At position

Set a quartzite stone, 30x16x10 ins., in a concrete base, 20 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 115, 1858-1925, and build a mound of stone around the monument;

from which

A yellow pine, 24 ins. diam., bears S. 18° E., 98 lks. dist., mkd. NM 115 M BT.

A yellow pine, 15 ins. diam., bears S. 59° W., 76 lks. dist., mkd. NM 115 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy clay and stony; 3rd rate.

Timber, yellow and white pine, spruce, and aspen; undergrowth, oak and service brush.

THE DARLING LINE, 116TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; thence the 116th Mi. Cor. bears N. 0 lks. dist.; on this determination the true line bears N. 89° 57' W.

REESTABLISHMENT

Thence from the 115th Mi. Cor. N. 89° 57' W., on a reestablishment of the 116th mile.

Ascend gradual NE. slope.

1.92 A sandstone, 20x14x10 ins. above ground, firmly set, bears N. lks. dist., mkd. 17 on N., and CENE BT on E. face.

10.50 Enter timber, bearing S. 85° E. and N.

12.00 Ascend gentle SE. slope.

22.00 Enter undergrowth in timber.

31.30 Spur, slopes S.; descend 120 ft. over SW. slope.

51.00 Leave timber and undergrowth, bears N. and S.; enter valley.

Chains

THE DARLING 1 NE, 116TH MILE

60.00 Set a quartzite stone, 24x20x15 ins., in a concrete base, 18 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 115 + 60 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 9 ins. diam., bears N. 87° W., 3.57 chs. dist., mkd. WP COLO BT.

A spruce, 24 ins. diam., bears S. 74° W., 3.25 chs. dist., mkd. WP NM BT.

62.55 Indian Creek, 10 lks. wide, stone and gravel bottom, course S. turning to S. 30° E., elevation 8660 ft.; enter timber and undergrowth, bears NW. and SE.; ascend 200 ft. over E. slope to corner.

68.45 The Carpenter 216th Mi. Cor. bears North, 34.41 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

70.00 Leave valley; ascend steep E. slope.

80.00 Darling's 116th Mi. Cor.; a granite stone in place, 40x24x24 ins. above ground, mkd. C on N., NM on S., 116 M on E., and 68 on W. face;

from which

A granite boulder, bears N. 60° E., 42 lks. dist., no marks.

I seat a tablet in top of stone marked Mile Corner No. 116, 1868-1925;

from which

A pine, 6 ins. diam., bears N. 36° E., 58 lks. dist., mkd. COLO 116 M BT.

A yellow pine, 21 ins. diam., bears S. 65½° E., 1.09 chs. dist., mkd. NM 116 M BT.

Land, rolling in wide valley.

Soil, sandy clay and stony; 2nd and 3rd rate.

Timber, scattering yellow and white pine, spruce, aspen, and cottonwood; undergrowth, oak brush and willows.

THE DARLING LINE, 117TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, August 16, 1927.

Chains THE DARLING LINE, 117TH MILE

West, on a retracement of the Darling boundary on a transit lin
describing a tangent.

79.65 N. 0 8 lks. to the parallel; thence the 117th Mi. Cor. position bea
N. 88 lks. dist.; on this determination the true line bears
N. 89° 22′ W.

REESTABLISHMENT

Thence from the 116th Mi. Cor. N. 89° 22′ W., on a reestablishme
of the 117th mile.

Ascend 460 ft. over steep E. and SE. slope, through dense oak brus

13.80 Thence ascend SE. slope.

19.00 Stone wall, bears N. and S.; enter timber, bearing N. and S.; d
scend SW. slope.

23.70 Small draw, course SE.; ascend along S. slope.

39.00 Gulch, course SE.; ascend 180 ft. over SE. slope.

46.30 Ridge, bears N. 39° E. and S. 61° W., elevation 9450 ft.; from th
point a snowy peak bears N. 32° W.; descend 510 ft. over stee
broken W. slope.

62.84 Wire fence, bears N. 55° E. and S. 55° W.

67.19 The Carpenter 215th Mi. Cor. bears North, 32.92 chs. dist.; an ir
post, firmly set in ground and mound of stone; I remove th
monument. The Las Animas and Costilla County Line pas
through this point.

74.60 Deep gulch, course S. 60° W. turning to SW.; ascend steep E. slo

76.00 Spur, slopes SW.; descend W. slope.

76.50 Spring branch in canon, course S. 20° W.; ascend E. slope.

79.66 Darling's 117th Mi. Cor. position: original stone destroyed (Carp
ter 215th Mi.); a small mound of stone and earth;
from which

A pine, 30 ins. diam., bears S. 11° E., 1.73 chs. dist., mkd. N
117 M. These marks were grown over; the "BT" near foot
tree has been obliterated.

A fallen pine, 18 ins. diam., bears N. 10° E., 1.02 chs. dist.;
blaze rotted out.

Chains

The Darling Line, 117th Mile

At position

Set a red sandstone, 36x16x9 ins., in a concrete base, 28 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 117, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 19 ins. diam., bears N. 4° W., 1.14 chs. dist., mkd. COLO 117 M BT.

A yellow pine, 16 ins. diam., bears S. 64½° E., 1.91 chs. dist., mkd. NM 117 M BT.

Land, mountainous.

Soil, sandy clay and stony; 3rd rate.

Timber, yellow and white pine, spruce, and aspen; undergrowth, oak brush.

The Darling Line, 118th Mile

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.91 N. 0.8 lks. to the parallel; thence the 118th Mi. Cor. bears N. 44 lks. dist.; on this determination the true line bears N. 89° 41′ W.

REESTABLISHMENT

Thence from the 117th Mi. Cor. N. 89° 41′ W., on a reestablishment of the 118th mile.

Ascend gradually along S. slope, through timber.

1.40 Spur, slopes S.; descend 140 ft. over SW. slope, enter undergrowth.

14.80 Vermejo Creek, 20 lks. wide, stony bottom, course S. 60° E., elevation 8840 ft.; ascend 160 ft. over NE. slope.

25.00 Spur, slopes N. 75° E.; descend 80 ft. over steep NW. slope covered with dense spruce and aspen.

31.00 Creek, 3 lks. wide, in deep gorge, course E. turning to N. 75° E.

34.00 Creek, course S. 75° E. turning to E.; ascend along S. wall of gorge.

Chains

THE DARLING LINE, 118TH MILE

39.50 Creek, course N. 75° E. turning to E.; ascend 410 ft. over steep broken E. slope to corner.

66.20 The Carpenter 214th Mi. Cor. bears North, 31.75 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the four bearing trees.

79.91 Darling's 118th Mi. Cor.: a sandstone, 18x12x7 ins., firmly set, mkd. C on N., 118 M on E., and 1868 on W. face.

In place of stone

Set a granite stone, 26x16x14 ins., in a concrete base, 18 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 118, 1868-1925, and build a mound of stone and earth around the monument;

from which

An aspen, 6 ins. diam., bears N. 52½° E., 62 lks. dist., mkd. COLO 118 M BT.

A spruce, 6 ins. diam., bears S. 60½° E., 79 lks. dist., mkd. NM 118 M BT.

Corner is under an E. and W. fence.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, yellow and white pine, spruce, and aspen; undergrowth, oak and service brush and willows.

THE DARLING LINE, 119TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, August 21, 1927.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 119th Mi. Cor. has become obliterated.

117.40 Altitude observation on the sun for azimuth, August 24, 1927.

160.00 N. 3.0 lks. to the parallel; the 120th Mi. Cor. has become obliterated.

239.91 N. 6.8 lks. to the parallel; thence the 121st Mi. Cor. bears N. 45° E., 4 lks. dist.; on this determination the true line bears N. 89° 54' W.

The Darling Line, 119th Mile

REESTABLISHMENT

Thence from the 118th Mi. Cor. N. 89° 54′ W., on a reestablishment of the 119th mile.

Ascend 860 ft. over intermittent steep and gradual E. slope, through timber.

51.00 The Carpenter 213.2 Mi. Cor. bears North, 31.84 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

59.70 Spur, slopes N. 20° E.; descend gradual NW. slope.

66.50 Head of drain, course NE.; ascend 170 ft. over NE. slope.

73.70 Basalt stone ledge, 7 ft. high x 10 ft. wide, slopes N.; thence along N. slope.

75.70 Head of drain, course NE.; ascend E. slope.

79.97 The proportional point; unable to identify Darling's 119th Mi. Cor. Set a granite stone, 26x12x9 ins., in a concrete base, 20 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 119, 1868-1925, and build a mound of stone and earth around the monument;

from which

A spruce, 6 ins. diam., bears N. 15° W., 10 lks. dist., mkd. COLO 119 M BT.

A balsam, 12 ins. diam., bears S. 51½° W., 1.07 chs. dist., mkd. NM 119 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, spruce and aspen.

The Darling Line, 120th Mile

REESTABLISHMENT

N. 89° 54′ W., on a reestablishment of the 120th mile.

Ascend steep E. slope, through timber.

3.00 Center of stock driveway, bears N. 10° W. and S. 10° E.

7.40 Spur, slopes N., elevation 10,560 ft.; begin gradual descent along NW. slope.

THE DARLING LINE, 120TH MILE

Chains

20.00 Enter dense spruce.

40.91 The Carpenter 212.325 Mi. Cor. bears North 31.32 chs. dist. iron post, firmly set in ground and mound of stone; I remove monument and obliterate the marks on the two bearing trees.

43.00 Thence along gradual N. slope.

49.20 Enter dense willow undergrowth in timber, bearing N. and S.

60.20 Spring branch, 2 lks. wide, course N.; begin gradual ascent of slope.

63.00 Abandoned placer mine bears N. 1.70 chs. dist.

63.70 Spring branch, 2 lks. wide, course NE.; leave willows.

65.45 SE. corner of abandoned placer mine reservoir.

66.40 Old log cabin bears N. 2.41 chs. dist.

69.20 Trail, bears NE. and SW.

78.60 A granite stone, 20x16x6 ins., loosely set, bears S. 22 lks. dist., COLO on N., 120 on S., and NM '01 on W. This is a local cor from which

A spruce, 12 ins. diam., bears N. 74° E., 30 lks. dist., mkd. 12 BT.

A spruce, 14 ins. diam., bears S. 28° W., 33 lks. dist., mkd. 12 BT.

79.97 The proportional point; unable to identify Darling's 120th Mi. Set a quartzite stone, 36x18x10 ins., in a concrete base, 18 ins. in ground, with tablet seated in top of stone marked Mile Co No. 120, 1868-1925, and build a mound of stone and earth aro the monument;

from which

A white spruce, bears N. 43¼° E., 37.5 lks. dist., mkd. CO 120 M BT.

A white spruce, bears S. 15¾° E., 16 lks. dist., mkd. NM 12 BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, spruce and aspen; undergrowth, willows.

THE DARLING LINE, 121ST MILE

REESTABLISHMENT

N. 89° 54' W., on a reestablishment of the 121st mile.

Ascend 360 ft. over steep E. slope, through heavy timber.

.90 Wire fence, bears N. 23° W. and S. 20° E.

1.02 Divide between the Canadian and Rio Grande Rivers, bears N. 20° W. and S. 20° E., elevation 10,932 ft. This is the Vermejo and Costilla Divide, and the summit of the Sangre de Cristo Range. The divide is the boundary of the Sangre de Cristo and the Maxwell Grants. It is also the line between Colfax and Taos Counties, New Mexico.

Set a granite stone, 26x13x13 ins., in a concrete base, 18 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 120 + 39.02 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 10 ins. diam., bears N. 34¼° E., 90 lks. dist., mkd. WP COLO BT.

A spruce, 8 ins. diam., bears S. 27½° E., 41 lks. dist., mkd. WP NM BT.

Descend 270 ft. over steep W. slope.

2.52 The Carpenter 211.05 Mi. Cor. bears North, 31.13 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

2.97 Darling's 121st Mi. Cor.; a sandstone, 17x12x9 ins., loosely set, mkd. C on N., NM on S., 121 M on W., and 68 on E. face, and deposited 8 ins. underground, a stone, 6x4x3 ins., mkd. 121 M;

from which

A spruce, 18 ins. diam., bears S. 19¾° E., 17 lks. dist., mkd. NM 121 M BT.

A fir, 12 ins. diam., bears N. 8½° E., 65 lks. dist., mkd. C 121 M BT.

In place of stone

Set a granite stone, 30x24x10 ins., in a concrete base, 18 ins. in the ground, with tablet seated in the top of stone marked Mile Corner No. 121, 1868-1925;

from which

Chains THE DARLING LINE, 121ST MILE

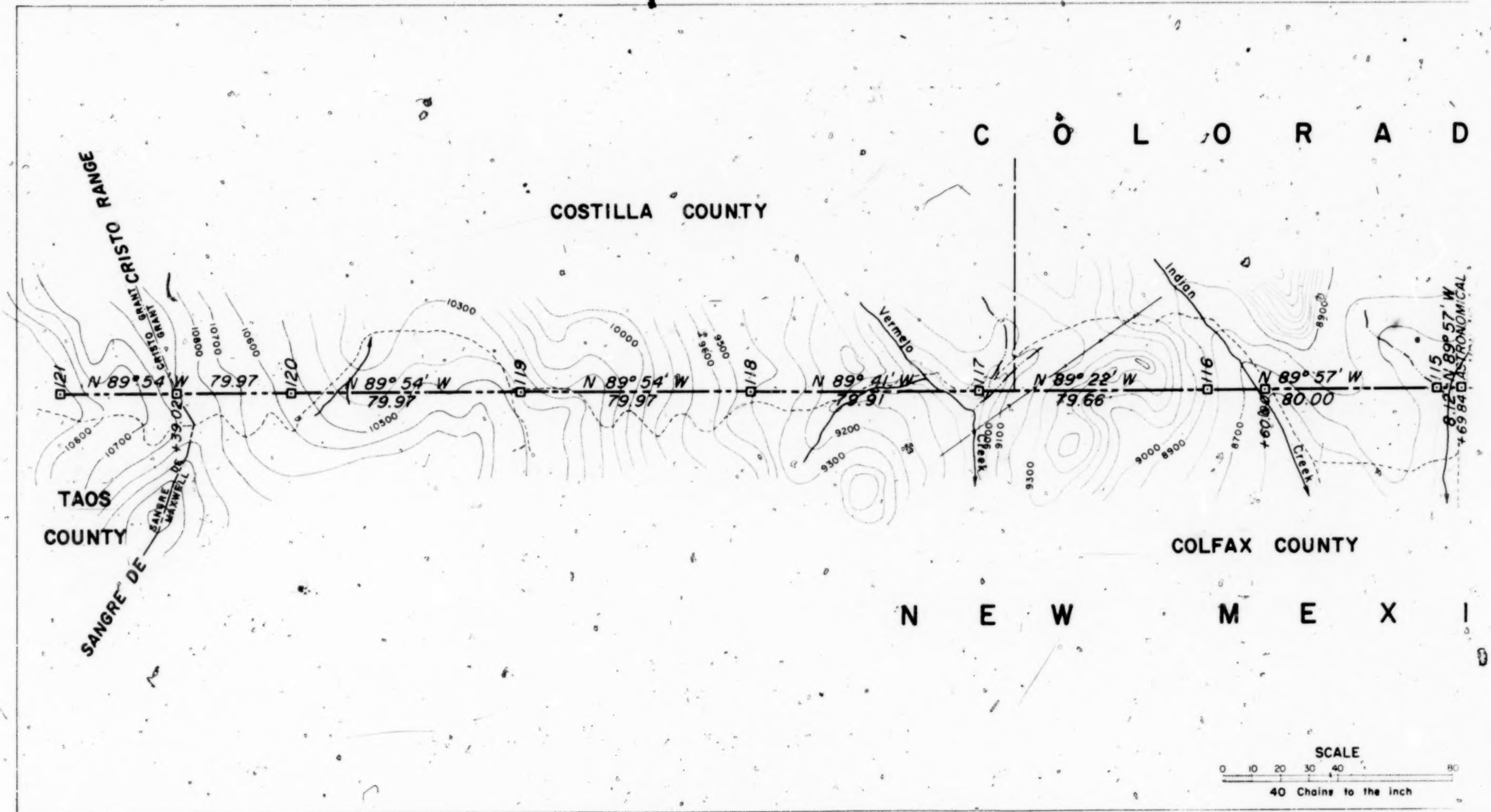
A fir, 10 ins. diam., bears N. 53° W., 36 lks. dist., mkd. COL 121 M BT.

A fir, 12 ins. diam., bears S. 70° W., 81 lks. dist., mkd. NM 121 BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

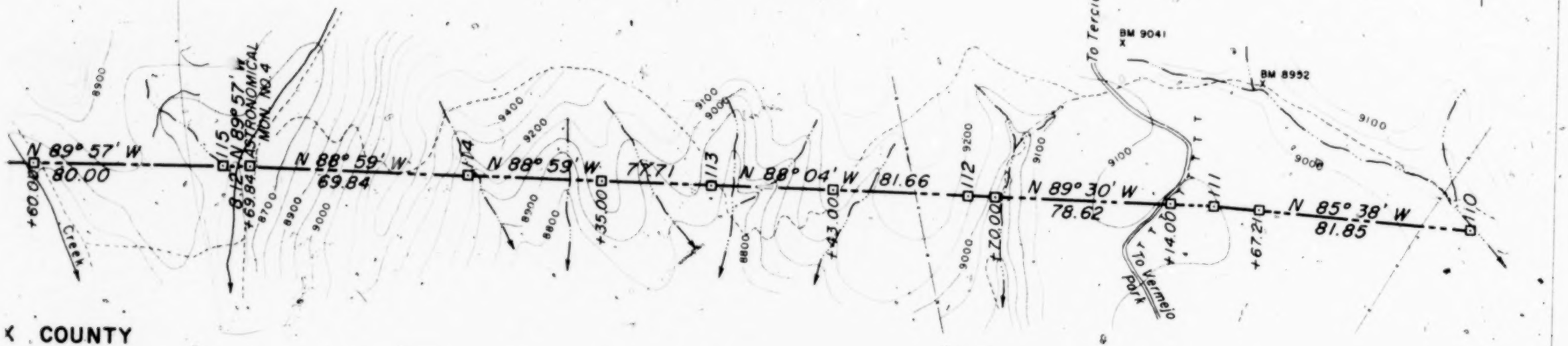
Timber, spruce, fir and aspen.



C O L O R A D
COSTILLA COUNTY
CRISTO RANGE
CRISTO GRANT
GRANT
121
N 89° 54' W
79.97
120
N 89° 54' W
79.97
119
N 89° 54' W
79.97
118
N 89° 41' W
79.91
117
N 89° 22' W
79.66
116
N 89° 57' W
80.00
115
N 89° 57' W
+69.84
ASTRONOMICAL
+39.02
SANGRE DE MAXWELL
SANGRE DE
TAOS
COUNTY
Vermejo
Creek
Indian
Creek
COLFAX COUNTY
N E W M E X I
SCALE
0 10 20 30 40 80
40 Chains to the inch

R A D O

LAS ANIMAS COUNTY



COLORADO

EXICO

COUNTY

SCALE

0 20 30 40 80

40 Chains to the inch

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

SUPREME COURT OF THE UNITED STATES

No. 1, Original

THE STATE OF NEW MEXICO, COMPLAINANT

v.

THE STATE OF COLORADO, DEFENDANT

REPORT OF THE BOUNDARY COMMISSIONER

PART TWO OF THREE

FROM SANGRE DE CRISTO RANGE
TO CONTINENTAL DIVIDE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1959

No. 1, Original

THE STATE OF NEW MEXICO, COMPLAINANT

v.

THE STATE OF COLORADO, DEFENDANT

REPORT OF THE BOUNDARY COMMISSIONER

PART TWO OF THREE

FROM SANGRE DE CRISTO RANGE TO CONTINENTAL DIVIDE

JOSEPH C. THOMA,
Boundary Commissioner.

WASHINGTON, D. C., May 2, 1960.

THE COURIER PRINTING CO., LITTLETON, N. H.

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SUPREME COURT OF THE UNITED STATES

October Term, 1959

No. 1, Original

THE STATE OF NEW MEXICO, Complainant

vs.

THE STATE OF COLORADO, Defendant

SECOND REPORT OF THE BOUNDARY COMMISSIONER

To the Chief Justice and the Associated Justices of the Supreme Court of the United States:

In further continuation of our work as commissioners designated in the Decree of April 13, 1925 (268 U. S., 108) in the above entitled case, the late Arthur D. Kidder and I have run, located, and marked upon the ground the boundary line between the States of Colorado and New Mexico in accordance with Section Two of the Decree and the principles announced in the Opinion delivered January 26, 1925 (267 U. S. 30).

All field work was done under the supervision of Arthur D. Kidder, Boundary Commissioner. (Mr. Kidder died suddenly at his home in Terre Haute, Indiana, in June, 1958.)

On July 2, 1958, The Supreme Court of the United States appointed Joseph C. Thoma, of Washington, D. C., Boundary Commissioner, to complete the report and field notes of the boundary survey. Mr. Thoma was assisted in his duties by Gordon E. Ainsworth and Associates of South Deerfield, Massachusetts, and Phoenix, Arizona.

The report of the survey will be given in three parts, viz:

PART ONE:

From the Northeastern corner of New Mexico westward to the Crest of the Sangre de Cristo Range

PART TWO:

From the Crest of the Sangre de Cristo Range westward to the Continental Divide

PART THREE:

From the Continental Divide westward to the corners of the four States: Arizona, Colorado, New Mexico and Utah.

SPECIFIC REPORT OF THE BOUNDARY COMMISSIONER

PART TWO

From the Crest of the Sangre de Cristo Range westward to the Continental Divide

This report continues the record of the field notes and mapping of the boundary survey between the States of Colorado and New Mexico, from the Crest of the Sangre de Cristo Range, terminal point for Part One, delivered to the Clerk of the Supreme Court on March 3, 1960, westward to the Continental Divide.

Unlike the first portion of the boundary, which had been subjected to exploratory surveys, this portion of the boundary was first surveyed and marked by Ehud N. Darling in 1868. Much simplified, the record shows that because of the extent of the obliterations of the marks of this Darling survey and for its dubious validity because of its alignment in latitude, the Commissioner of the General Land Office employed Howard B. Carpenter, to make an independent resurvey of the boundary between the States, not predicated on the Darling survey, to correct both conditions of the Darling survey; the loss of its marks and its incorrect location. The Commissioner did specifically instruct Carpenter to obliterate all evidences of the Darling boundary survey. Carpenter accomplished and reported as completed the above task in 1904. The General Land Office officially accepted the Carpenter survey and used it until 1908, when a Joint Resolution of the Congress accepting the Carpenter survey as the true boundary was vetoed by the President.

To acquire a more detailed knowledge of the events which was ultimately concluded by a decree of the Supreme Court, the reader is referred to the Opinion of the Supreme Court (267 U. S. 30), dated January 26, 1925. Of immediate concern now is the establishment of the basis for the acceptance of this portion of the survey when the events prior to the retracement and reestablishment of the Darling line by Arthur D. Kidder, Boundary Commissioner, indicate that:

1. The original Darling line had become obliterated to the extent that a resurvey was deemed necessary and so ordered.
2. The resurvey, as ordered, was not to be dependent on the remaining Darling marks, but rather, was to have destroyed all evidence of same.

The following percentagewise tabulation is based on the markers established on the original boundary survey line as recorded by Darling. The recorded number of monuments is taken to be 100%, and the interval of the reestablished line under consideration is the same as this report; from Darling's 121st Mile Corner to his 203rd, as reestablished by Wm. C. Perkins in 1917, inclusive.

Markers, the Darling Line		100%
Markers found and destroyed by Carpenter	19%	
Markers recovered by Arthur D. Kidder	64%	
Markers obliterated or lost beyond identification	36%	
Markers reestablished by Arthur D. Kidder		143%

Whereas the retracement of the Darling line by Kidder recovered or otherwise identified 64% of the Darling monuments, this is subdivided to show the means of monument identification, as follows:

Total Darling monuments recovered		100%
Percentage of above found as a monument with deposit and recorded ties	37%	
Percentage of above identified by a deposit stone only	16%	
Percentage of above by firmly set and marked stones	47%	

The first tabulation shows that 36% of the original Darling monuments were lost, of which, 19% are credited with destruction by Carpenter. Of this 82 miles of boundary, there were only two areas where the destruction of the Darling markers was comprehensive, resulting in retracements of more than one or two miles in length. One of these two areas was in the San Luis Valley, from Darling's 136th to 143rd Mile Corners, both of the above original corners firmly set and clearly marked. With the destruction of the 136th, 143rd and 144th Darling Corners the retracement would have had to be close to 15 miles in length, more than twice the retracement length actually required. Carpenter stated in his field notes for his 168th mile, that he destroyed the marks on Darling's 164th Mile Corner, and in addition, "The Darling Corners were found and destroyed from this point eastward to the foot of the Culebra Range" (Darling's 131st approximately). "They were nearly all lying on the ground, not witnessed in any way. They were generally well and distinctly marked."

The tabulation below, covering the above portion of the Darling Boundary subjected to destruction by natural forces and the deliberate efforts of man, shows how well the line resisted obliteration.

Markers, the Darling line (131st to 164th inclusive)	100%
Markers found and destroyed by Carpenter, reported	100%
Markers found and destroyed by Carpenter (per Kidder's resurvey)	35%
Markers recovered by Arthur D. Kidder	65%
Markers obliterated or lost beyond identification	35%

Of the 34 miles of boundary above tabulated, the 35% destruction of corners credited to Carpenter occurs between Darling's 131st and his Astronomical Monument No. 5 (148th approximately) in the San Luis Valley

previously discussed. From Astronomical Monument No. 5 to Darling's 164th, inclusive, the original Darling Line was completely recovered.

As decreed by the Supreme Court, the monuments and corners established by Howard B. Carpenter were 100% destroyed as shown in the field note records enclosed in the latter part of this report. It should be noted however, that when a Carpenter monument served some other function in addition to marking the Carpenter Boundary line, only the identifying marks of the monument as a boundary marker were destroyed, its other functions being preserved. In addition to reestablishing the Darling Boundary, Arthur D. Kidder established numerous new monuments on the restored boundary of the States where they would be conspicuous for the aid of those who may have need for locating the line.

The reestablished boundary was monumented generally by concrete monuments, molded in mass at the station, in galvanized metal forms in the shape of truncated cones of the following sizes:

8" upper diam., 16" lower diam., 36" high
16" upper diam., 24" lower diam., 36" high
8" upper diam., 11" lower diam., 18" high

Heavy bronze tablets were set in the top of these concrete markers as well as in rock outcrops and selected stone markers to identify the monuments.

An illustration of the heavy bronze tablet used is shown on the opposite page. The tablet was marked with identifying Mile Corner, or portion thereof, in the field, and properly oriented on the monument top.

The tangent method of surveying a parallel of latitude was selected for the retracement of the boundary line using the original Darling records to aid in identifying monuments. The Darling monuments remaining, that could be identified, were used as control for the retracement of the intervening intervals where Darling's survey had become lost.

The survey of this portion of the boundary, from the Crest of the Sangre de Cristo Range proceeded westward, retracing and reestablishing the Darling line through the Sangre de Cristo Grant in Colorado and New Mexico, ascending to the crest of Boundary Peak at an elevation of 12,680 feet above sea level. The peak is on a spur running southwesterly from the main divide of the Snowy Range; and is the highest elevation of the entire boundary.

There is an abrupt descent to the floor of the San Luis Valley, ranging near the 7700 ft. level. The boundary crossing this valley comes to the Rio Grande in a box canon of lava rock, about a 300 ft. drop to the river at 7400 ft. elevation, marking the western limit of the Sangre de Cristo Grant. The Rio Grande is the major river of this portion of the boundary. Its watershed includes the tributaries, the Costilla, Conejos, Los Pinos, and Chama Rivers bringing to the Rio Grande all the drainage west of the Crest of the Sangre de

Cristo Range and east of the Continental Divide. The flat valley land to the west of the Rio Grande is very much of a lava desert for about twenty miles, ending near Ortiz, Colorado, and Los Pinos, New Mexico; where the ascent of the Big Horn Mountains begins. The ascent continues steadily for about ten miles to an elevation of 10,100 ft., then dropping into Toltec Creek, cresting on the southern point of Osier Mountain at 10,000 feet, thence an abrupt descent into the Toltec Gorge, the channel of the Rio Los Pinos flowing southeasterly into New Mexico. Ascending out of the Gorge, the rise on the boundary line continues to 10,300 ft., at the crest just south of the Cumbres Pass.

The boundary area westerly from Cumbres Pass is all high, mountainous country, heavily timbered up to timber line, and many bare rugged peaks to the north. All of the drainage is to the south, first the Wolf Creek, then the main Chama River, then the Chamita or Little Chama. The high divide of

the Chama Range extends southward between the forks of the latter streams the crest at 10,000 ft., and the high peaks only a few miles to the north. West from the Chamita the ascent is more gradual to the Continental Divide at an elevation of 9050 feet.

Timber is prevalent over most of this portion of the boundary with the exception of the San Luis Valley. Cedar and pinon occur on the mountain slopes and mesa to an elevation of 7000 feet, Ponderosa pine, aspen, spruce and fir, from this elevation to the timberline, grows in dense stands on the western mountain slopes and high mesas. The vegetation of the San Luis Valley consists mostly of grasses, which, depending on seasonal moisture and density of grazing, may be of slight to dense coverage.

Undergrowth of many mixed varieties, vary in density from scattering on the eastern portion and the valley floor, to very large and dense west from the summit of the Chama Range. It is believed that the thick growth of large and dense oak brush is responsible for the discrepancy in the alignment of the boundary from this summit to the Continental Divide.

Trinidad, Colorado, was used as the headquarters and supply point for the boundary survey from the northeastern corner of New Mexico westward to the Rio Grande and Antonito, Colorado from there to the San Juan River. Saddle horses and pack horses, and the needed packers, were supplied from the large Wm. & H. J. Heck ranch, high in the mountains of Colfax County New Mexico, for packing in the supplies, and for moving the party camp along the line.

The surveying was accomplished under the direct supervision of Arthur D. Kidder, Boundary Commissioner, with an experienced field crew headed by Hugh B. Crawford, regularly employed by the General Land Office detailed to assist in the survey.

The following portions of this volume enclose the field notes of this part of the boundary survey, in nine groups, each group covering approximately eight miles of the boundary. Both the retracement and reestablishment of the boundary are included, and each group ends with a map of the field notes. The map is inserted so that one may read the field notes and view the map at the same time.

The foregoing and the following portions of this report are respectfully submitted to the Chief Justice and the Associate Justices of the Supreme Court of the United States for their approval.

Your humble and obedient servant,

JOSEPH C. THOMA
Boundary Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 120

to

MILE CORNER No. 130

This portion of the boundary survey was executed with a Buff and Buff engineer's transit equipped with an improved Smith Solar attachment, the horizontal circle has two double opposite verniers reading to single minutes; the vertical circle has one double vernier reading to single minutes. The instrument was in good condition and was placed in satisfactory adjustment prior to the beginning of the survey, and was tested and found free from appreciable error. Frequent tests were made throughout the survey.

The tangent method of surveying a parallel of latitude was selected; the controlling meridian was established by observations on Polaris; the bearing of the tangent was deflected from the meridian by repetition of angles and carried forward by transit line, taking the mean of direct and reversed sights at each instrument station. Frequent observations on Polaris, and direct observations on the sun for azimuth were made throughout the survey to test the azimuth of the tangent.

Measurements were made with a narrow steel tape, 5 chains in length, graduated every link for the first 100 links, and thereafter at intervals of ten links. The tape was tested by comparison with a 1 chain standard steel tape and found correct. Measurements were made on the slope and the vertical angles determined by a clinometer in good adjustment; the field notes show the horizontal equivalents.

COLORADO AND NEW MEXICO BOUNDARY

The Darling Line, 121st Mile

Continuing in Volume Two the survey records of the Colorado and New Mexico Boundary, the pertinent information of the retracement and re-establishment of the Darling 121st Mile, ending the Field Notes and Maps of the Volume One Report is herewith repeated.

Chains *RETRACEMENT*

Altitude observation on the sun for azimuth, August 21, 1927. West, on a retracement of the Darling Boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 119th Mi. Cor. has become obliterated

117.40 Altitude observation on the sun for azimuth, August 24, 1927.

160.00 N. 3.0 lks. to the parallel; the 120th Mi. Cor. has become obliterated

239.91 N. 6.8 lks. to the parallel; thence the 121st Mi. Cor. bears N. 44 lks. dist.; on this determination the true line bears N. 89° 54′ W.

The Darling Line, 121st Mile

Chains

REESTABLISHMENT

Thence from the 120th Mi. Cor., as reestablished (see Part One of Three, page 192), N. 89° 54′ W., on a reestablishment of the 121st mile.

Ascend 360 ft. over steep E. slope, through heavy timber.

38.80 Wire fence, bears N. 23° W. and S. 20° E.

39.02 Divide between the Canadian and Rio Grande Rivers, bears N. 20° W. and S. 20° E., elevation 10,932 ft. This is the Vermejo and Costilla Divide, and the summit of the Sangre de Cristo Range. The divide is the boundary of the Sangre de Cristo and the Maxwell Grants. It is also the line between Colfax and Taos Counties, New Mexico.

Set a granite stone, 26x13x13 ins., in a concrete base, 18 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 120 + 39.02 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 10 ins. diam., bears N. 34¼° E., 90 lks. dist., mkd. WP COLO BT.

A spruce, 8 ins. diam., bears S. 27½° E., 41 lks. dist., mkd. WP NM BT.

Descend 270 ft. over steep W. slope.

63.52 The Carpenter 211.05 Mi. Cor. bears North, 31.13 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

79.97 Darling's 121st Mi. Cor.; a sandstone, 17x12x9 ins., loosely set, mkd. C on N., NM on S., 121 M on W., and 68 on E. face, and deposited underneath, 8 ins. underground, a stone, 6x4x3 ins., mkd. 121 M;

from which

A spruce, 18 ins. diam., bears S. 19¾° E., 17 lks. dist., mkd. NM 121 M BT.

A fir, 12 ins. diam., bears N. 8½° E., 65 lks. dist., mkd. C 121 M BT.

In place of stone

Set a granite stone, 30x24x10 ins., in a concrete base, 18 ins. in the ground, with tablet seated in the top of stone marked Mile Corner

Chains

THE DARLING LINE, 121ST MILE

No. 121, 1868-1925;
from which
A fir, 10 ins. diam., bears N. 53 W., 36 lks. dist., mkd. COL 121 M BT.
A fir, 12 ins. diam., bears S. 70¾ W., 81 lks. dist., mkd. NM 12[illegible] BT.
Land, mountainous.
Soil, sandy loam and stony; 3rd rate.
Timber, spruce, fir and aspen.

THE DARLING LINE, 122ND MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

67.45 Altitude observation on the sun for azimuth, August 26, 1927.

80.34 N. 0.8 lks. to the parallel; thence the 122nd Mi. Cor. bears N. 1.01 chs. dist.; on this determination the true line bears N. 89° 17′ W.

REESTABLISHMENT

Thence from the 121st Mi. Cor. N. 89° 17′ W., on a reestablishment of the 122nd mile.

Descend 260 ft. over gentle W. slope and along gently rolling S. slope to 122nd Mi. Cor., through timber.

1.20 Leave timber, bears N. and S.; enter open prairie valley.

27.80 Spring branch, 1 lk. wide, course SW.; enter willows.

34.50 Spring branch, 1 lk. wide, course S.; leave willows; thence along gently rolling S. slope.

46.00 Creek, 21 lks. wide, course S.

51.14 Fence, bears N. 75° E. and S. 75° W.

66.83 The Carpenter 210th Mi. Cor. bears North, 30.17 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the two bearing trees.

80.35 Darling's 122nd Mi. Cor.; a sandstone, 32x15x5 ins., firmly set in mound of stone, mkd. C on N., NM on S., 122 M on W., and

Chains

THE DARLING LINE, 122ND MILE

on E. face; a sandstone, 11x6x2 ins., mkd. 122 M, 12 ins. below the surface.

In place of stone

Set a granite stone, 36x14x8 ins., in a concrete base, 24 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 122, 1868-1925, and build a mound of stone around the monument;

from which

An aspen, 10 ins. diam., bears N. 48° E., mkd. COLO 122 M BT.

An aspen, 6 ins. diam., bears S. 45½° E., mkd. NM 122 M BT.

Land, rolling prairie valley.

Soil, sandy loam and stony; 3rd rate.

Timber, spruce, fir and aspen; undergrowth, willows.

THE DARLING LINE, 123RD MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

20.00 Hour angle observation of Polaris for azimuth, August 29, 1927.

80.00 N. 0.8 lks. to the parallel; the 123rd Mi. Cor. has become obliterated.

160.00 N. 3.0 lks. to the parallel; the 124th Mi. Cor. was not established by Darling.

165.62 Altitude observation on the sun for azimuth, September 1, 1927.

215.00 N. 5.4 lks. to the parallel; the 124 + 55 Chs. Mi. Cor. has become obliterated.

239.31 N. 6.8 lks. to the parallel; thence the 125th Mi. Cor. bears S. 19.4 lks. dist.; on this determination the true line bears S. 89° 57′ W.

RELSTABLISHMENT

Thence from the 122nd Mi. Cor. S. 89° 57′ W., on a reestablishment of the 123rd mile.

Descend 70 ft. over gentle SW. slope, through timber.

9.20 Leave timber, bears N. and S.; enter open park.

11.45 East fork of Costilla Creek, 5 lks. wide, 15 ins. deep, course S. 15° E., elevation 10,172 ft.; ascend 6 ft. to W. fork of creek.

Chains

THE DARLING LINE, 123RD MILE

14.45 West fork of Costilla Creek, 4 lks. wide, course SE.; ascend 730 ft. over NE. slope to point for 123rd Mi. Cor.

23.00 Enter timber, bears N. and S.

50.20 The Carpenter 209.19 Mi. Cor. bears North, 29.98 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the four bearing trees.

79.77 The proportional point; unable to identify Darling's 123rd Mi. Cor.
Set a grey quartz stone, 24x18x13 ins., in a concrete base, 16 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 123, 1868-1925, and build a mound of stone around the monument;
from which
A spruce, 6 ins. diam., bears S. 27° W., 43 lks. dist., mkd. X 123 M BT.
A spruce, 8 ins. diam., bears N. 49¼° W., 59 lks. dist., mkd. COLO 123 M BT.
Land, rolling E. of Costilla Creek and mountainous W. of creek.
Soil, sandy loam and stony; 3rd rate.
Timber, fir, spruce and aspen.

THE DARLING LINE, 124TH MILE

REESTABLISHMENT

S. 89° 57' W., on a reestablishment of the 124th mile.
Ascend 265 ft. over NE. slope, through timber.

18.77 Crest of spur, slopes NE.
Set a basalt stone, 20x18x9 ins., in a concrete base, 14 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 123 + 18.77 Chs., 1868-1925, and build a mound of stone around the monument;
from which
A spruce, 8 ins. diam., bears N. 45° E., 21 lks. dist., mkd. X COLO BT.
A spruce, 10 ins. diam., bears S. 39° E., 23½ lks. dist., mkd. X NM BT.
Descend 76 ft. over NW. slope.

26.00 Draw, course NE.; ascend 320 ft. over N. and N. 70° E. slopes.

THE DARLING LINE, 124TH MILE

12.65 Thence ascend over N. 70° E. slope.

15.80 Top of ascent; descend 19 ft. over gentle W. slope on a bench.

16.38 The Carpenter 208th Mi. Cor. bears North, 30.25 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

17.80 Spring branch, 4 lks. wide, course S. 10° W. turning S., about 3.00 chs. dist. to a small lake; ascend 120 ft. over E. slope to point for 124th Mi. Cor.

19.77 The proportional point; the 124th Mi. Cor. was not established by Darling.

Set a granite stone, 26x20x10 ins., in a concrete base, 18 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 124, 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 8 ins. diam., bears N. 54° E., 17 lks. dist., mkd. COLO 124 M BT.

A spruce, 9 ins. diam., bears S. 27° E., 27 lks. dist., mkd. NM 124 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, spruce, fir and aspen.

THE DARLING LINE, 125TH MILE

REESTABLISHMENT

S. 89° 57' W., on a reestablishment of the 125th mile.

Ascend 1115 ft. over steep NE. and E. slopes, through timber.

2.20 Lake, bears N. approximately 5 chs. dist.

3.00 Leave timber at timberline, bears NE. and SW.

4.00 Thence over slide rock.

4.27 Bench at foot of Boundary Peak.

4.72 Top of cliff and slide rock on E. face of Boundary Peak; thence over rolling mountain top.

5.18 Crest of Boundary Peak, elevation 12,680 ft.

Set a white quartz stone, 24x20x16 ins., in a concrete base, 20 ins.

Chains

THE DARLING LINE, 125TH MILE

in the ground, with tablet seated in top of stone marked Mi
Corner No. 124 + 53.59 chs., 1868-1925; and build a mound
stone around the monument;

from which

Fisher's Peak, bears N. 81 E.

Sharp conical peak, bears N. 41 40' E.

Dig pits, 18x18x12 ins. deep, E. and W. of monument, 10 lks. dis

Descend 536 ft. over steep SW. slope to 125th Mi. Cor.

56.74 The point for the Carpenter 207.1 Mi. Cor. bears North 29.88 ch
dist.; iron pipe not found; mound of stone on top of spur
Boundary Peak; from which the bearings to peaks recorded
the field notes checked within 0 45' of record; 1 scattered st
mound of stone.

79.77 Darling's 125th Mi. Cor.: a granite stone, 36x18x5 ins., loosely s
in a mound of stone, mkd. C on N., NM on S., and 68 on W. fa
a granite stone, 8x6x2 ins., mkd. 125 M, 10 ins. below the surfa

In place of stone

Set a granite stone, 40x24x8 ins., in a concrete base, 30 ins. in t
ground, with tablet seated in top of stone marked Mile Cor
No. 125, 1868-1925, and build a mound of stone around the mo
ment;

from which

Pilot knob, rocky peak at timberline, nearly in line with
Mountain, bears S. 78 30' W.

Highest point on high, rugged mountain, bears S. 11 07' E.

Dig pits, 18x18x12 ins. deep, E. and W. of monument, 10 lks. d

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, spruce and fir on E. 19.00 chs., remainder above timberl

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THE DARLING LINE, 126TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit l
describing a tangent.

38.81 Hour angle observation of Polaris for azimuth, September 1, 1927.

80.18 N. 0.8 lks. to the parallel; thence the 126th Mi. Cor. bears N. 0
lks. dist.; on this determination the true line bears N. 89 31' W

The Darling Line, 126th Mile

ORIGINS

REESTABLISHMENT

Thence from the 125th Mi. Cor. N. 89° 31' W., on a reestablishment of the 126th mile.

Descend 1145 ft. over steep W. slope and along SW. and S. slopes to 126th Mi. Cor., over open grassland.

1.00 Enter timber at timberline, bears N. and S.

2.50 Culebra Creek, near head, 5 lks. wide, course S. 55° W.; thence along SW. slope.

6.80 The Carpenter 206.35 Mi. Cor. bears North, 29.47 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

7.60 Draw, drains S. 15° W.; thence along S. slope.

9.05 Spring branch, 1 lk. wide, course S.

11.90 Spring branch, 2 lks. wide, course SW.

13. Darling's 126th Mi. Cor., a granite stone, 20x12x4 ins., firmly set a mound of stone, mkd. C on N., NM on S., 126 M on E., and 68 on W. face.

In place of stone

Set a granite stone, 36x19x15 ins., in a concrete base, 24 ins. in the ground, with tablet seated in top of stone marked Mile Corner No. 126, 1868-1925, and build a mound of stone and earth around the monument;

from which

A spruce, 9 ins. diam., bears N. 49¼° E., 22 lks. dist., mkd. COLO 126 M BT.

A spruce, 8 ins. diam., bears S. 13¼° E., 34 lks. dist., mkd. NM 126 M BT.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, spruce, fir and aspen.

The Darling Line, 127th Mile

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

Chains THE DARLING LINE, 127TH MILE

80.00 The 127th Mi. Cor. was not established by Darling; point falls on [illegible]lder field near foot of cliff, continue distance.

90.02 Altitude observation on the sun for azimuth, September 5, 1927.

160.00 N. 3.0 lks. to the parallel; the 128th Mi. Cor. has become obliterated

241.71 N. 6.8 lks. to the parallel; thence the 129th Mi. Cor. bears S. 8.4 lks. dist.; on this determination the true line bears S. 89° 59′ W.

REESTABLISHMENT

Thence from the 126th Mi. Cor. S. 89° 59′ W., on a reestablishment of the 127th mile.

Ascend 28 ft. along S. slope, through timber.

4.00 Spur, slopes S.; descend 695 ft. over S. and SW. slopes to Culebra Creek.

22.20 Spur, slopes S. 10° W.

29.80 Thence descend steep SW. slope.

61.93 The Carpenter 205th Mi. Cor. bears North, 28.85 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

63.07 Culebra Creek, 15 lks. wide, 6 ins. deep, course N. 39° W. from S. 33° E., elevation 10,361 ft.; ascend 508 ft. over steep NE. slope to crest of spur in 128th mile.

80.57 The proportional point; the 127th Mi. Cor. was not established by Darling; point falls at foot of cliff in slide rock; impracticable to establish corner.

Land, mountainous.

Soil, sandy loam and stony; 3rd rate.

Timber, spruce, fir and aspen.

THE DARLING LINE, 128TH MILE

REESTABLISHMENT

S. 89° 59′ W., on a reestablishment of the 128th mile.

Ascend over steep NE. slope, over slide rock and cliff.

2.10 Top of cliff, 100 ft. high; enter timber.

10.12 Crest of spur, slopes N. 20° W.

A granite stone in place,

The Darling Line, 128th Mile

Seat a tablet in top of stone marked Mile Corner No. 127 + 10.12 Chs., 1868-1925;

from which

A spruce, 12 ins. diam., bears N. 73 E., 14 lks. dist., mkd. WP COLO BT.

A spruce, 9 ins. diam., bears S. 35 E., 19 lks. dist., mkd. WP NM BT.

Raise a mound of stone, 4 ft. base, 2 ft. high, E. of monument.

Descend 48 ft. along a N. slope.

15.60 Foot of descent: ascend 36 ft. along N. slope.

24.60 Crest of spur, slopes N. 30 W.; descend 1138 ft. over steep NW. and W. slopes to point for 128th Mi. Cor.

13.40 Thence descend W. slope.

12.56 The Carpenter 204th Mi. Cor. bears North, 29.04 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

7.40 Thence along S. slope of spur.

7.40 Point of spur, slopes W.

0.57 The proportional point; unable to identify Darling's 128th Mi. Cor.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 128, 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 12 ins. diam., bears N. 36¼° E., 81 lks. dist., mkd. COLO 128 M BT.

A spruce, 10 ins. diam., bears S. 41° W., 13 lks. dist., mkd. NM 128 M BT.

Land, mountainous.

Soil, sandy and stony clay loam; 3rd rate.

Timber, spruce, fir and aspen.

The Darling Line, 129th Mile

REESTABLISHMENT

S. 89° 59′ W., on a reestablishment of the 129th mile.

Descend 55 ft. over NW. slope, through timber.

Chains THE DARLING LINE, 129TH MILE

3.45 Spring branch, 5 lks. wide, in bottom of canon, course N. 13 W. ascend 148 ft. over steep NE. slope.

9.35 Slope changes to N. 10° E.

14.70 Crest of spur, slopes NW.; descend 252 ft. over W. slope.

27.40 Draw, drains N. 30° W.; ascend 9 ft. over steep NE. slope.

28.15 Top of ascent; descend 390 ft. over N. and NW. slopes to 129th Mi. Cor.

36.90 Slope changes to NW.

61.00 The Carpenter 203rd Mi. Cor. bears North, 28.80 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

63.20 Spring branch, 1 lk. wide, course N. 30° W.; thence along N. slope.

80.57 Darling's 129th Mi. Cor.; a granite stone, 24x8x6 ins., firmly set in a mound of stone, no marks;

from which

A pine stump, 27 ins. diam., bears S. 83° E., 51 lks. dist., with old blaze and faint scribe marks.

A spruce, 27 ins. diam., bears N. 57° W., 35 lks. dist., mkd. B.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 129, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 12 ins. diam., bears N. 56° E., 28 lks. dist., mkd. COLO 129 M BT.

A spruce, 6 ins. diam., bears S. 31¼° E., 42 lks. dist., mkd. NM 129 M BT.

Land, mountainous.

Soil, sandy clay loam and stony; 3rd rate.

Timber, spruce, fir, pine and aspen; undergrowth, water birch along second spring branch.

THE DARLING LINE 130TH MILE

RETRACEMENT

azims

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

15.00 Altitude observation on the sun for azimuth, September 10, 1928.

10.72 N. 0.8 lks. to the parallel; thence the 130th Mi. Cor. bears N. 84.1 lks. dist.; on this determination the true line bears N. 89° 24' W.

REESTABLISHMENT

Thence from the 129th Mi. Cor. N. 89° 24' W., on a reestablishment of the 130th mile.

Descend 522 ft. over NW. slope to 130th Mi. Cor., through timber.

5.00 Leave timber, bears N. and S.; enter sage brush and scattering oak brush.

4.46 The Carpenter 202nd Mi. Cor. bears North, 28.17 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove this monument.

.00 Draw, drains NW.

.60 Low spur, slopes NW.

.73 Darling's 130th Mi. Cor.; a schist stone, 18x10x6 ins., firmly set, mkd. C on N., NM on S., 130 M on E., and 68 on W. face;

from which

A pine, 26 ins. diam., bears S. 35° W., 184 lks. dist., mkd. NM 130 M BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 130, 1868-1925, and build a mound of stone around the monument;

from which

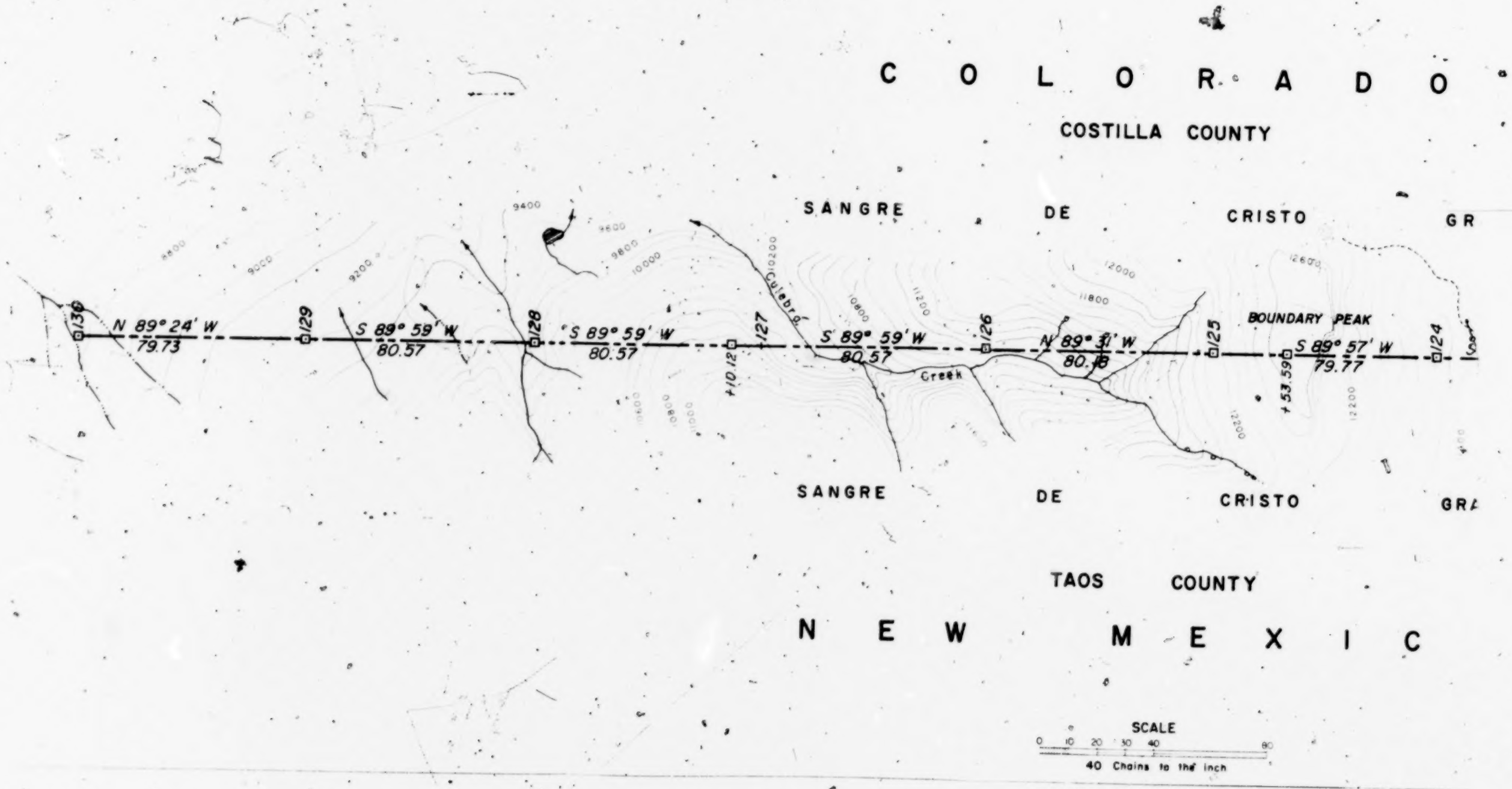
A pine, 12 ins. diam., bears S. 71¾° E., 169 lks. dist., mkd. NM 130 M BT.

A pine, 20 ins. diam., bears N. 1½° W., 186 lks. dist., mkd. COLO 130 M BT.

Land, rolling mountainous, beginning of San Pedro Mesa.

Soil, sandy clay loam and stony; 2nd rate.

Timber, spruce, pine and aspen; undergrowth, sage brush and oak brush.



COLORADO
COSTILLA COUNTY
SANGRE DE CRISTO GR
BOUNDARY PEAK
N 89° 24' W
79.73
S 89° 59' W
80.57
S 89° 59' W
80.57
S 89° 59' W
80.57
N 89° 31' W
80.18
S 89° 57' W
79.77
Culebra
Creek
+10.12
+53.59
130
129
128
127
126
125
124
SANGRE DE CRISTO GRA
TAOS COUNTY
NEW MEXIC
SCALE
0 10 20 30 40 80
40 Chains to the inch

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 130

to

MILE CORNER No. 143

THE DARLING LINE, 131ST MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.28 N. 0.8 lks. to the parallel; thence the 131st Mi. Cor. bears N. 22 lks. dist.; altitude observation on the sun for azimuth, September 11, 1928; on this determination the true line bears N. 89° 50' W.

REESTABLISHMENT

Thence from the 130th Mi. Cor. N. 89° 50' W., on a reestablishment of the 131st mile.

Descend 18 ft. over W. slope.

1.55 Canon, course N. 38° W. from S. 20° E.; ascend 58 ft. over N. slope.

7.40 Crest of spur, slopes N.; descend 47 ft. over W. slope.

10.90 Draw, drains N. 8° W.; ascend 46 ft. over NE. slope; enter timber and undergrowth.

18.00 Crest of spur, slopes N. 18° W.; descend 289 ft. over W., S., and NW. slopes to corner.

26.00 Thence along S. slope.

39.50 Point of spur, slopes W.

45.85 Draw, course NW.; foot of hill; leave timber; descend over gentle NW. slope.

60.70 The Carpenter 201st Mi. Cor. bears North, 27.73 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove the monument.

63.50 Dry wash, 6 ft. deep, course NW.

80.25 Spring branch, 1 lk. wide, course N.

80.28 Darling's 131st Mi. Cor.; a granite stone 12x10x6 ins., firmly set in a mound of stone, mkd. 131 M on E. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 131, 1868-1925, and build a mound of stone around the monument;

The Darling Line, 131st Mile

from which

A house, bears S. 16° 40' E., approximately 36.8 chs. dist.

Land, rolling mountainous.

Soil, sandy and gravelly loam, stony; 2nd rate.

Timber, scattering pinon; undergrowth, sage brush and oak brush.

The Darling Line, 132nd Mile

RETRACEMENT

Altitude observation on the sun for azimuth, September 11, 1928.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

N. 0.8 lks. to the parallel; the 132nd Mi. Cor. has become obliterated.

N. 3.0 lks. to the parallel; thence the 133rd Mi. Cor. bears N. 3.2 lks. dist.; on this determination the true line bears N. 89° 59' W.

REESTABLISHMENT

Thence from the 131st Mi. Cor. N. 89° 59' W., on a reestablishment of the 132nd mile.

Descend 140 ft. over gentle NW. slope to point for 132nd Mi. Cor., through sage brush.

Dry stream bed, course NW.

Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 131 + 35.50 Chs., 1868-1925, and build a mound of stone around the monument.

Road from San Luis, Colorado, to Amalia, New Mexico, bears N. 24° E. and S. 24° W.

Telephone line parallel to road.

The Carpenter 200th Mi. Cor. bears North, 27.62 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

The proportional point; corner stone destroyed (Carpenter 168th Mi.).

Construct a concrete monument, in a form 8x14x36 ins. set 24 ins.

Chains

THE DARLING LINE, 132ND MILE

in the ground, with tablet seated in the top marked Mile
No. 132, 1868-1925, and build a mound of stone around the
ment.

Land, gently rolling on San Pedro Mesa.

Soil, sandy and gravelly loam, with some stone; 2nd rate.

Undergrowth, sage brush.

THE DARLING LINE, 133RD MILE

REESTABLISHMENT

N. 89° 59' W., on a reestablishment of the 133rd mile.

Descend 24 ft. over gentle NW. slope, through sage brush.

8.40 Ungraded road, bears N. 57° E. and S. 57° W.

29.90 Bottom of valley, drainage N.; ascend 95 ft. over gentle NE

39.25 Dry wash, drains N.

54.50 Road, bears N. 18½° E. and S. 21° W.

60.57 The Carpenter 199th Mi. Cor. bears North, 27.52 chs. dist.; a
post, firmly set in ground and mound of earth; I remov
monument.

68.00 Low hog back ridge, bears NE. and S. 60° W.; descend 85 ft.
NW. slope.

75.50 Shallow drain, course N. 20° E.; ascend 16 ft. over E. slope.

80.06 Darling's 133rd Mi. Cor.; a basalt stone, 24x8x6 ins., lying o
ground, mkd. C. on one face and NM. on opposite face, 68 o
face and 133 on opposite face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 2
in the ground, with tablet seated in the top marked Mile C
No. 133, 1868-1925, and build a mound of stone around the m
ment;

from which

Snow peak, bears S. 14° W.

Conical peak, bears N. 66¾° E.

Ute peak, bears S. 72° W.

Land, gently rolling mesa.

Chains

THE DARLING LINE, 133RD MILE

Soil, sandy and gravelly loam, with some stone; 2nd rate.
Undergrowth, sage brush.

THE DARLING LINE, 134TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

[illegible].00 N. 0.8 lks. to the parallel; the 134th Mi. Cor. has become obliterated.

[illegible].00 N. 3.0 lks. to the parallel; the 135th Mi. Cor. has become obliterated.

24.44 N. 6.8 lks. to the parallel; thence the 136th Mi. Cor. bears N. 45.9 lks. dist.; on this determination the true line bears N. 89° 53' W.

REESTABLISHMENT

Thence from the 133rd Mi. Cor. N. 89° 53' W., on a reestablishment of the 134th mile.

Along a gentle N. slope, through sage brush; descend 40 ft. to the point for 134th Mi. Cor.

[illegible].74 The Carpenter 198th Mi. Cor. bears North, 27.40 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove this monument.

[illegible].35 Road, bears N. 53½° W. and S. 57° E.

[illegible].48 The proportional point; corner stone destroyed (Carpenter 168th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 134, 1868-1925, and build a mound of earth around the monument.

Land, gently rolling mesa.
Soil, sandy and gravelly loam; 2nd rate.
Undergrowth, sage brush.

THE DARLING LINE, 135TH MILE

REESTABLISHMENT

N. 89° 53' W., on a reestablishment of the 135th mile.
Along a gentle N. slope, through sage brush; descend 13 ft.

Chains

THE DARLING LINE, 135TH MILE

29.50 Foot of descent; ascend 45 ft. over gentle E. slope to point for

60.59 The Carpenter 197th Mi. Cor. bears North, 26.86 chs. dist.; an post, firmly set in ground and mound of stone; I remove monument.

80.48 The proportional point; corner stone destroyed (Carpenter Mi.).

Construct a concrete mo ...ent, in a form 16x24x36 ins., set 2 in the ground, with tablet seated in the top marked Mile C No. 135, 1868-1925, and build a mound of earth around the m ment.

Land, gently rolling mesa.

Soil, sandy and gravelly loam; 2nd rate.

Undergrowth, sage brush.

THE DARLING LINE, 136TH MILE

REESTABLISHMENT

N. 89° 53' W., on a reestablishment of the 136th mile.

Ascend 36 ft. over gentle NE. slope, through sage brush.

0.875 Falls 7½ lks. S. of a pine stake, 2 ins. sq., 26 ins. above gro mkd. C on N. face.

8.50 Road, bears N. 67° E. and S. 58° W.

29.90 Enter timber, bears N. 17° E. and S. 35° W.

30.30 Secondary road, bears N. 35° E. and S. 26° W.

37.80 Basalt rim rock, 8 ft. high, bears N. and S.; W. rim of San P Mesa; descend 438 ft. over steep, broken W. slope to point cor.

47.10 Dry wash, drains N. 30° W.

51.35 Road, bears N. 54° W. and S. 54° E.

55.95 The Carpenter 196.05 Mi. Cor. bears North, 26.91 chs. dist.; an post, firmly set in ground and mound of stone; I remove monument and obliterate the marks on the four bearing trees.

80.48 Darling's 136th Mi. Cor.; a basalt stone, 32x12x8 ins., firmly se a mound of stone, mkd. C on N., NM on S., 136 M on E., and on W. face; a basalt stone, 8x8x3 ins., mkd. 136 M, under mo of stone.

THE DARLING LINE, 136TH MILE

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground in a concrete base, with tablet seated in the top marked Mile Corner No. 136, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 6 ins. diam., bears N. 49° E., 91 lks. dist., mkd. COLO 136 M BT.

A pinon, 10 ins. diam., bears S. 46½° E., 50 lks. dist., mkd. NM 136 M BT.

Land, rolling mesa and mountainous face of mesa.

Soil, sandy and gravelly loam, sandy, stony, clayey loam; 2nd and 3rd rate.

Timber, pinon and cedar; undergrowth, sage brush.

THE DARLING LINE, 137TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 137th Mi. Cor. has become obliterated; altitude observation on the sun for azimuth, September 14, 1928.

00.00 N. 3.0 lks. to the parallel; the 138th Mi. Cor. has become obliterated.

40.00 N. 6.8 lks. to the parallel; the 139th Mi. Cor. has become obliterated.

20.00 N. 12.2 lks. to the parallel; the 140th Mi. Cor. has become obliterated.

00.00 N. 19.0 lks. to the parallel; the 141st Mi. Cor. has become obliterated.

80.00 N. 27.4 lks. to the parallel; the 142nd Mi. Cor. has become obliterated.

61 12 N. 37.3 lks. to the parallel; thence the 143rd Mi. Cor. bears S. 24.7 lks. dist.; altitude observation on the sun for azimuth, September 17, 1928; on this determination the true line bears S. 89° 58′ W.

THE DARLING LINE, 137TH MILE

Chains *REESTABLISHMENT*

Thence from the 136th Mi. Cor. S. 89° 58' W., on a reestablish
of the 137th mile.

Descend 256 ft. over S. and W. slopes, through timber and u
growth.

0.30 Draw, course SW.

10.60 Slope changes to W.

17.50 Foot of San Pedro Mesa; leave timber; enter San Luis valley.

43.20 Dry gulch, 12 ft. deep, course NW.

54.00 Construct a concrete monument, in a form 16x24x36 ins., set 24
in the ground, with tablet seated in the top marked Mile Co
No. 136 + 54 Chs., 1868-1925, and build a mound of earth ar
the monument.

54.30 Road, bears N. 10° E. and S. 1½° E.

55.84 Irrigation ditch, 2 ft. deep, 9 ft. wide, course N. 13° E. from
S. 10¾° E.

56.82 Lateral ditch, course SW.

59.42 The Carpenter 195th Mi. Cor. bears North, 27.05 chs. dist; an
post, firmly set in ground and mound of earth; I remove
monument.

63.80 Abandoned irrigation canal, bears N. 3° W. and S. 13° E.

72.50 Enter cultivated field.

80.16 The proportional point; corner stone destroyed (Carpenter 1
Mi.).

Construct a concrete monument, in a form 8x14x36 ins., standin
ins. above ground, with rectangular base, 24x24x14 ins., 20
in the ground, with tablet seated in the top marked Mile Co
No. 137, 1868-1925, and raise a mound of earth around the m
ment;

from which

An iron pipe on face of Meyer's store, bears S. 35° 14' W., 7
chs. dist.

Land, E. end mountainous to foot of mesa, W. portion, valley.
Soil, sandy loam and sandy and stony loam; 1st and 3rd rate.
Timber, pinon; undergrowth, sage brush.

The Darling Line, 138th Mile

REESTABLISHMENT

S. 89° 58' W., on a reestablishment of the 138th mile.
Over level bottom land, through old field.

1.34 Enter alfalfa field.

21.64 Fence between fields, bears N. 15° W. and S. 15° E.

35.86 Fence, bears N. 58½° E. and S. 58½° W.

39.65 Irrigation ditch, bears N. 29° W. and S. 29° E.

56.35 Dry bed of Costilla River, course N. 19° W. from S. 16¾° E., elevation 7740 ft.; cottonwood trees along creek.

59.19 The Carpenter 194th Mi. Cor. bears North, 27.02 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

62.35 Highway from Garcia, Colorado, and points N., to Costilla, New Mexico, and points S., bears N. 11° W. and S. 13° E.

63.05 Telephone line parallel with road.

63.15 Irrigation ditch, course N. 11° W. from S. 13° E.

64.00 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 137 + 64 Chs., 1868-1925, and build a mound of earth around the monument.

70.96 Telephone line, bears N. 71° E. and S. 71° W.

71.16 Irrigation ditch, course S. 71° W.

80.16 The proportional point; corner stone destroyed (Carpenter 168th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., standing 30 ins. above ground, with rectangular base, 26x20x12 ins., 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 138, 1868-1925, and build a mound of earth around the monument; elevation of tablet 7754 ft.;

from which

A basalt stone, 10x6 ins. on top, bears N. 50° 10' E., 1.22 chs. dist., mkd. with three notches on E. and W., NM on S., and COLO on N. face

Land, level valley.

Chains

THE DARLING LINE, 138TH MILE

Soil, sandy loam; 1st rate.
Timber, cottonwoods along river banks.

THE DARLING LINE; 139TH MILE

REESTABLISHMENT

S. 89° 58' W., on a reestablishment of the 139th mile.
Over nearly level bottom land, through field.

0.93 Fence, between fields, bears N. and S.

9.45 Fence, between fields, bears N. 75° E. and S. 75° W.

17.95 Fence, bears N. 23½° W. and S. 23½° E.; enter sage brush.

44.56 Telephone line, bears S. 20½° E. and N. 20½° W. turning W.

59.05 The Carpenter 193rd Mi. Cor. bears North, 27.03 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove the monument.

64.70 Road, bears S. 60° E. and W.

76.25 Falls 1 lk. S. of a basalt stone, 4x4x12 ins. above ground, mkd. with two notches on E., NM on S., and C on N. face.

76.28 Falls 51½ lks. S. of a pine post, 4 ins. sq., 20 ins. above ground, mkd. with three notches on E., NM on S., and C on N. face.

79.50 Road, bears N. 60° E. and S. 60° W. from E. and W. road.

80.16 The proportional point; corner stone destroyed (Carpenter 193rd Mi.).

Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 139, 1868-1925, and build a mound of earth around the monument; elevation of tablet 7724.5 ft.

Land, level bottom.
Soil, sandy and gravelly loam; 1st and 2nd rate.
Undergrowth, sage brush.

The Darling Line, 140th Mile

REESTABLISHMENT

S. 89° 58′ W., on a reestablishment of the 140th mile.

Over nearly level land, through sage brush; telephone line N., 44 lks. dist. and winding road S., 57 lks. dist.

0.40 Road, bears N. 60° E. from E. and W. road.

59.02 The Carpenter 192nd Mi. Cor. bears North, 27.06 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove this monument.

75.67 Telephone line, bears S. from E. and W. line.

80.16 The proportional point; corner stone destroyed (Carpenter 168th Mi.).

Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 140, 1868-1925, and build a mound of earth around the monument; elevation of tablet 7691 ft.

Land, nearly level.

Soil, sandy and gravelly loam; 2nd rate.

Undergrowth, sage brush.

The Darling Line, 141st Mile

REESTABLISHMENT

S. 89° 58′ W., on a reestablishment of the 141st mile.

Descend 41 ft. over gradual W. slope, through sage brush; telephone line N.; 45 lks. dist. and road S., 44 lks. dist.

70.86 Beginning of graded road.

72.05 Irrigation ditch, bears N. 23° E. and S., 64 lks. dist. to forks from S. 56¼° E. to N. 56¼° W. and SW.

74.36 Enter lane, fence on S., irrigation ditch and telephone line on N., cultivated land on S.

72.36 Fence N., beginning of cultivated land N. of road.

78.93 North, 27.12 chs. dist.; unable to identify the Carpenter 191st Mi. Cor.

74.86 House, bears N., 1.32 chs. dist.

Chains

THE DARLING LINE, 141ST MILE

75.86 Road, bears N. and S.

77.36 House, bears S., 2.19 chs. dist.

80.16 The proportional point; corner stone destroyed (Carpenter 16
Mi.).
Construct a concrete monument, in a form 16x24x36 ins., set 24
in the ground, with tablet seated in the top marked Mile Cor
No. 141, 1868-1925; elevation of tablet 7650 ft.
Land, nearly level.
Soil, sandy and gravelly loam: 1st and 2nd rate.
Undergrowth, sage brush.

THE DARLING LINE, 142ND MILE

REESTABLISHMENT

S. 89° 58' W., on a reestablishment of the 142nd mile.
Descend 38 ft. over gradual W. slope, in a lane and road, telepho
line N., 42 lks. dist., irrigation ditch on N., cultivated land N. a
S. of lane.

46.40 House, bears S., 2.24 chs. dist.

55.60 Fence N., end cultivated land N. of lane.

58.84 North, 27.17 chs. dist.; unable to identify the Carpenter 190th M
Cor.

65.90 Fence N., begin cultivated land N.

68.30 House, bears N., 94 lks. dist.

75.80 Road, bears N. and S.

77.20 House, bears N., 1.33 chs. dist., and a house, bears S., 2.77 chs. dis

80.16 The proportional point; corner stone destroyed (Carpenter 168
Mi.).
Set a concrete block, 18x11x9 ins., 20 ins. in the ground, with table
seated in the top marked Mile Corner No. 142, 1868-1925.
At a point N., 40 lks. dist.
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins
in the ground, for witness to the 142nd Mi. Cor., with table
seated in the top marked WC Mile Corner No. 142 + 0.40 Chs
N., 186 -1925; elevation of tablet 7613 ft.

THE DARLING LINE, 142ND MILE

Land nearly level.

Soil, sandy and gravelly loam; 1st rate.

THE DARLING LINE, 143RD MILE

REESTABLISHMENT

S. 89° 58' W., on a reestablishment of the 143rd mile.

Over level land, in a lane and road, irrigation ditch and telephone line N. of road, cultivated land N. and S. of lane.

19 Fence N., end cultivated land N.

79 Fence and irrigation ditch N., begin cultivated land N.

89 House, bears S., 1.81 chs. dist.

14 Fence, bears N. and S.

34 Road turns N., end of lane, enter sage brush W. of road.

75 The point for the Carpenter 189th Mi. Cor. bears North, 27.23 chs. dist.; a mound of earth between pits N., S., E. and W.; an iron post, lying loose on ground, was found S., 70 lks. dist.; I remove the post from the vicinity.

44 Telephone line turns N. to Jarosa, Colorado.

50 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 142 + 75 Chs., 1868-1925.

64 Highway from Jarosa, Colorado, and points N., to Sunshine Valley, New Mexico, and points S., bears N. and S.

84 Fences N. and W., begin cultivated land N. of fence.

10 Darling's 143rd Mi. Cor.; a basalt stone, 26x12x6 ins., firmly set, mkd. C on N., NM on S., 143 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 143, 1868-1925; elevation of tablet 7579 ft.;

from which

Ute Mountain, bears S. 39° W., approximately 383 chs. dist., vertical angle + 5° 23'.

Land, nearly level.

Soil, sandy and gravelly loam; 1st and 2nd rate.

Undergrowth, sage brush.

C O L

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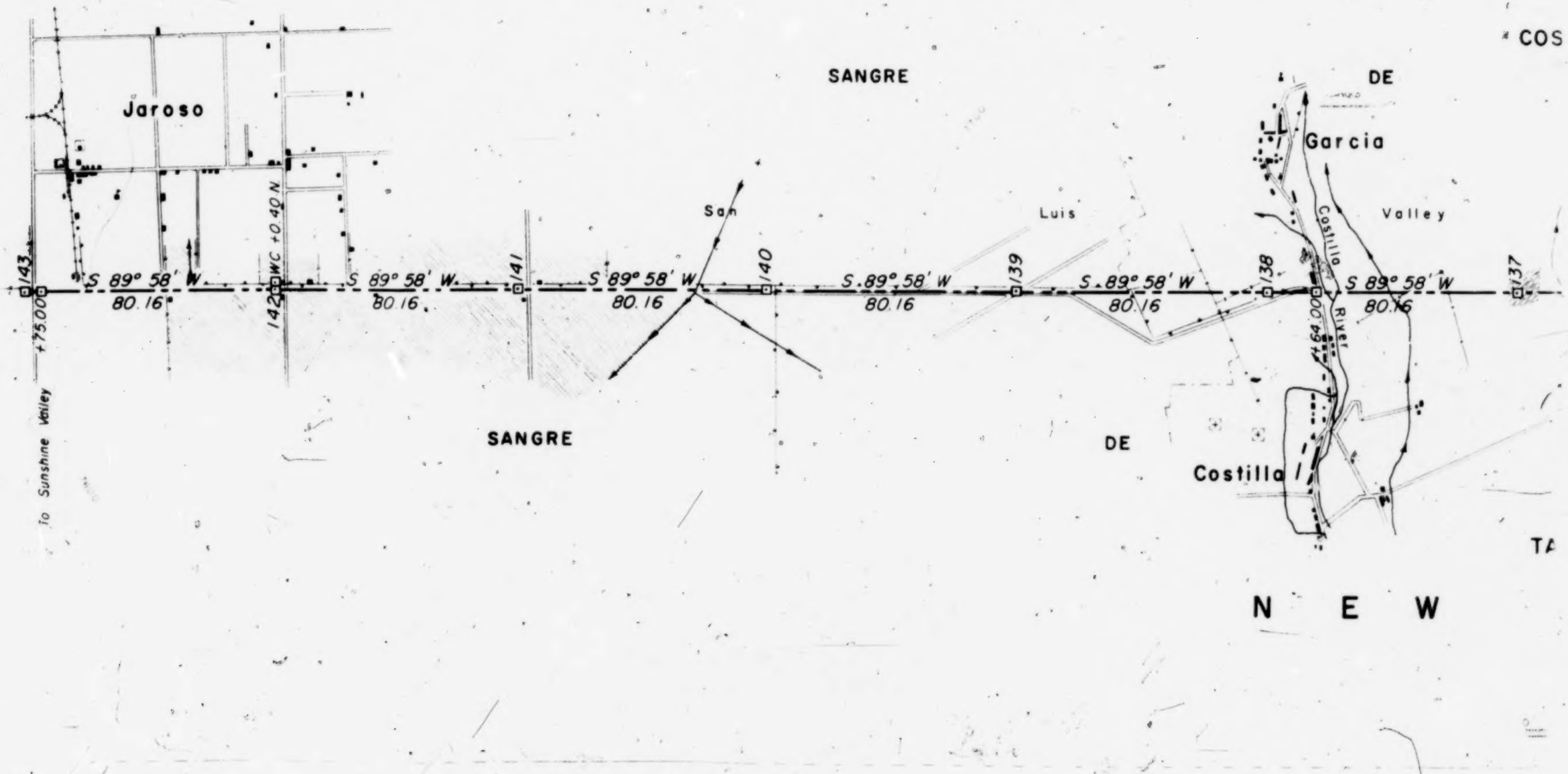
SANGRE

DE



N E W

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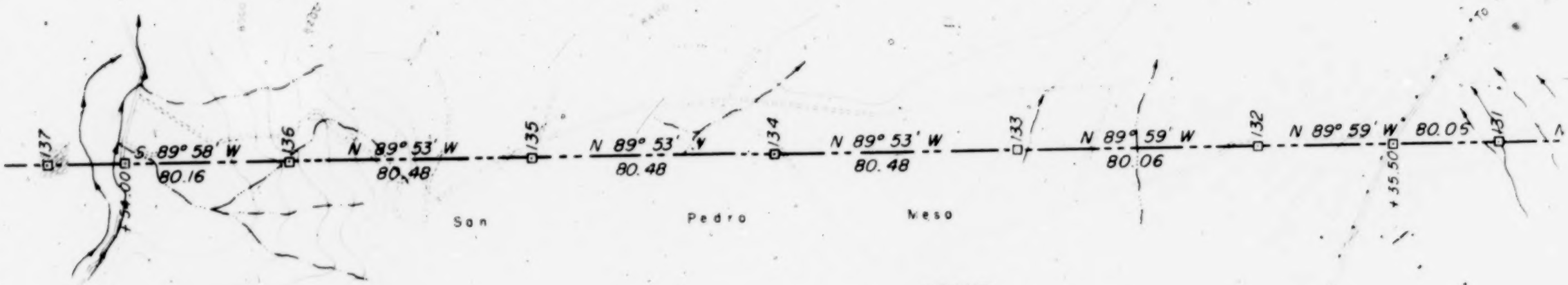
L O R A D O

COSTILLA COUNTY

CRISTO

GRANT



CRISTO

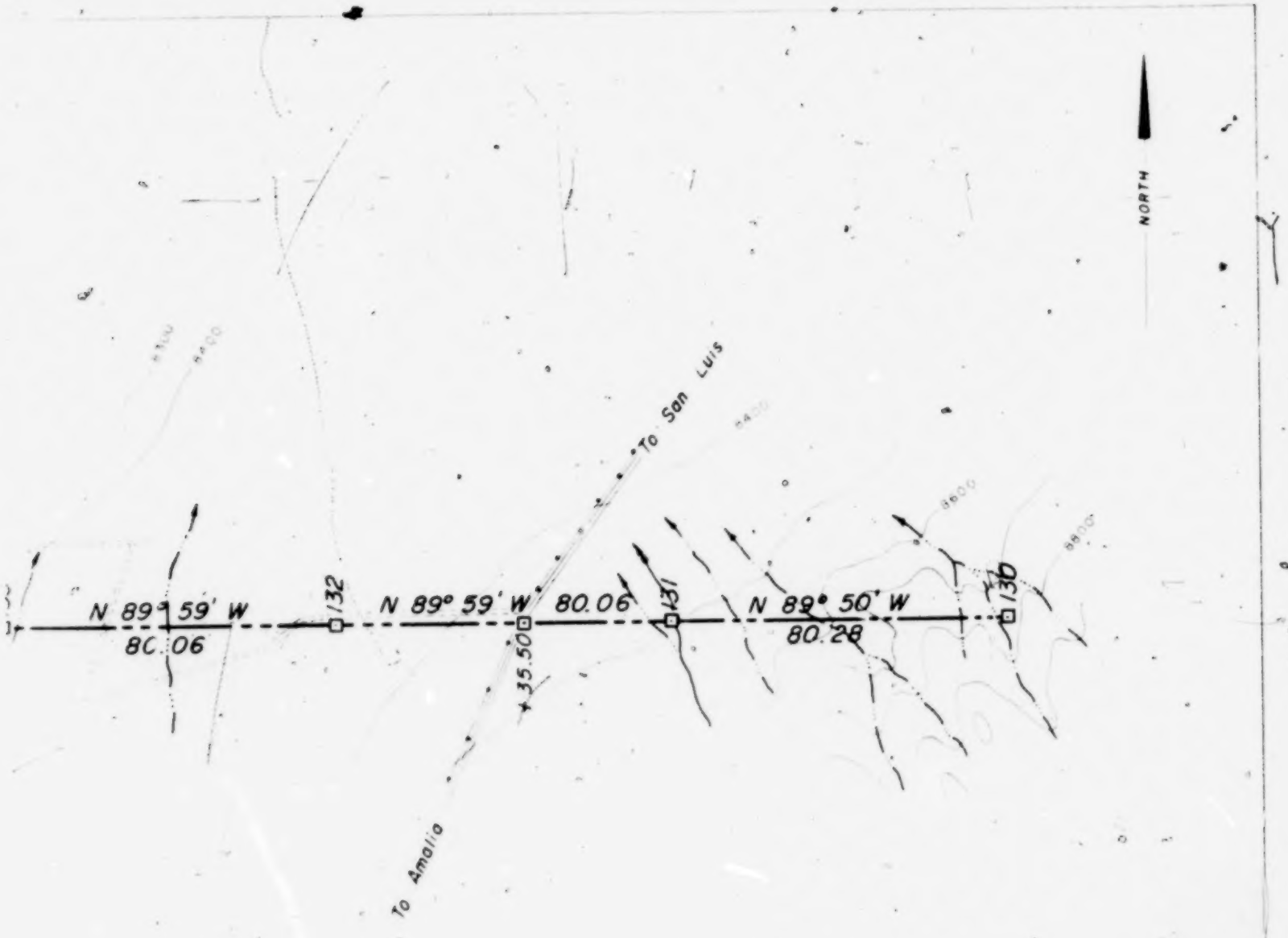
GRANT

TAOS COUNTY

M E X I C O

SCALE

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 15, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 143
to
MILE CORNER No. 151

The Darling Line, 144th Mile

Chains

RETRACEMENT

Hour angle observation of Polaris for azimuth, September 21, 192[illegible]
West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.05 N. 0.8 lks. to the parallel; thence the 144th Mi. Cor. bears S. 6.3 lks. dist.; on this determination the true line bears S. 89° 57' W.

REESTABLISHMENT

Thence from the 143rd Mi. Cor. S. 89° 57' W., on a reestablishment of the 144th mile.

Descend 33 ft. over gradual NW. slope, along cultivated land N. and sage brush S.

35.62 Fence turns N., leave cultivated land, enter sage brush N.

58.62 The Carpenter 188th Mi. Cor. bears North, 27.27 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove this monument.

75.60 Falls 6 lks. S. of a basalt stone, 20x12x10 ins., firmly set, mkd. with four notches on W., two notches on E., C on N., and NM on S face.

80.05 Darling's 144th Mi. Cor.; a basalt stone, 22x9x7 ins., firmly set mkd. C on N., NM on S., 144 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 144, 1868-1925, and build a mound of earth around the monument.

Land, nearly level.

Soil, sandy and gravelly; 2nd rate.

Undergrowth, sage brush.

The Darling Line, 145th Mile

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.0[illegible]. 0.8 lks. to the parallel; the 145th Mi. Cor. has become obliterated

THE DARLING LINE, 145TH MILE

.00 N. 3.0 lks. to the parallel; the 146th Mi. Cor. has become obliterated.

40.00 N. 6.8 lks. to the parallel; the 147th Mi. Cor. has become obliterated.

11.83 N. 11.5 lks. to the parallel; thence the Darling Astronomical Monument No. 5 bears S. 3.4 lks. dist.; altitude observation on the sun for azimuth, September 24, 1928; on this determination the true line bears West.

RETRACEMENT

West, continuing on a retracement of the Darling boundary, on a transit line describing a tangent.

9.85 The point for the 148th Mi. Cor. falls in the Rio Grande; the corner was not established by Darling.

13.97 Set temporary point, Sept. 24, 1928, concluding the season's field work.

Oct. 5, 1931, resume field work, continuing line and measurement.

Altitude observation on the sun for azimuth, Oct. 8, 1931.

40.33 N. 1.0 lks. to the parallel; thence the 149th Mi. Cor. bears S. 86.5 lks. dist.; on this determination the true line bears S. 89° 27′ W.

REESTABLISHMENT

Thence from the 144th Mi. Cor. West, on a reestablishment of the 145th mile.

Descend 41 ft. over gradual NW. slope, through sage brush.

43.10 Irrigation canal, bears N. and S.

58.69 The Carpenter 187th Mi. Cor. bears North, 27.22 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove this monument.

73.53 Falls 2.6 lks. N. of a basalt stone, 24x10x6 ins., firmly set, mkd. with three notches on E., three notches on W., C on N., and NM on S. face; an iron pipe, 2 ins. diam., mkd. with three notches on E. and W. faces, set by stone.

80.00 Falls 3.2 lks. N. of a basalt stone, 10x4x10 ins. above ground, firmly set, mkd. C 145 on N. and NM on S. face.

80.43 The proportional point; corner stone destroyed (Carpenter 168th Mi.).

Chains

THE DARLING LINE, 145TH MILE

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 145, 1868-1925, and build a mound of earth around the monument.

Land, gentle NW. slope, nearly level.
Soil, sandy and gravelly loam; 3rd rate.
Undergrowth, sage brush.

THE DARLING LINE, 146TH MILE

REESTABLISHMENT

West, on a reestablishment of the 146th mile.
Descend 28 ft. over gradual W. slope, through sage brush.

58.33 The Carpenter 186th Mi. Cor. bears North, 27.19 chs. dist.: an iron post, firmly set in ground and mound of earth; I remove this monument.

79.57 Falls 5.4 lks. N. of a basalt stone, 5x2x9 ins. above ground, firmly set, mkd. C 146 on N. and NM on S. face.

80.43 The proportional point; corner stone destroyed (Carpenter 168th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 146, 1868-1925, and build a mound of earth around the monument;

from which

Ute Mountain, bears South, approximately 297 chs. dist., vertical angle + 7° 20′.

Land, gentle W. slope, nearly level.
Soil, sandy and gravelly loam; 3rd rate.
Undergrowth, sage brush.

THE DARLING LINE, 147TH MILE

REESTABLISHMENT

West, on a reestablishment of the 147th mile.
Over level land, through sage brush.

9.00 Ascend 28 ft. over E. slope.

THE DARLING LINE, 147TH MILE

Top of ascent; thence over level land.

Descend 50 ft. over NW. slope.

Dry bed of Costilla River, 50 lks. wide, curving from NW. to SW.; general course S. 27° W.; thence over gently rolling land W. of river.

Ascend 25 ft. to point for corner.

The Carpenter 185th Mi. Cor. bears North, 27.18 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove this monument.

Falls 11.5 lks. N. of a basalt stone, 12x10x6 ins. above ground, firmly set, mkd. C 147 on N. and NM on S. face.

The proportional point; corner stone destroyed (Carpenter 168th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins in the ground, with tablet seated in the top marked Mile Corner No. 147, 1868-1925, and build a mound of earth around the monument.

Land, gently rolling.

Soil, sandy and gravelly loam; 3rd rate.

Undergrowth, sage brush.

THE DARLING LINE, 148TH MILE

REESTABLISHMENT

West, on a reestablishment of the 148th mile.

Ascend 64 ft. over gentle SE. slope, through sage brush.

Crest of divide between the Costilla River and Rio Grande, bears N. and S.; descend 23 ft. over nearly level land to astronomical station.

The Carpenter 184th Mi. Cor. bears North, 27.10 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

Darling's Astronomical Monument No. 5; a basalt stone, 12x12x30 ins., firmly set in ground and mound of stone, mkd. COLORADO on N., NEW MEXICO on S., 37° NL on W., and 1868 on E. face; local marks 1.40 W. TWP. Cor. on W. face.

Chains THE DARLING LINE, 148TH MILE

In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 20 in
in the ground in a concrete base, with tablet seated in the t
marked Mile Corner No. 147 + 70.53 Chs., 1868-1925, and bu
a mound of stone around the monument.

REESTABLISHMENT

Thence from Astronomical Monument No. 5
S. 89° 27′ W., continuing on the reestablishment of the 148th mi
with new measurement.
Descend 132 ft. over steep, rocky W. slope to bed of Rio Grande

1.70 East rim of gorge, 112 ft. deep, bears NW. and S. 20° E.

7.55 Middle of Rio Grande, 1.50 chs. wide, 12 ins. deep, course S. 20 E
from NW., elevation 7389 ft.; ascend 141 ft. to W. rim of gorg
in 149th Mi.

9.90 The proportional point; the 148th Mi. Cor. was not established
Darling; point falls on W. side of gorge; impracticable to esta
lish corner.
Land, gently rolling and gorge.
Soil, sandy and gravelly loam, stony in W. end; 3rd rate.
Undergrowth, sage brush.

THE DARLING LINE, 149TH MILE

REESTABLISHMENT

S. 89° 27′ W., on a reestablishment of the 149th mile.
Ascend to west rim of gorge.

1.80 West rim of gorge, bears N. 18¾° W. and S. 58½° E.; ascend 83 f
over gradual E. slope, through open country, very little vegetation

4.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins
in the ground, with tablet seated in the top marked Mile Corne
No. 148 + 4 Chs., 1868-1925, and build a mound of stone around
the monument.

44.58 A basalt stone, 8x6x16 ins. above ground, loosely set in small mound
of stone, no marks, bears South, 51½ lks. dist.; the closing corne

THE DARLING LINE, 149TH MILE

of secs. 23 and 24, T. 32 N., R. 11 E., New Mexico Prin. Mer.; Colorado.

The Carpenter 183rd Mi. Cor. bears North, 27.61 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

Darling's 149th Mi. Cor.; a basalt stone, 10x6x4 ins., mkd. 149, under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 149, 1868-1925, and build a mound of stone around the monument; reset original deposit by S. side of monument.

Land, gently rolling and gorge.

Soil, sandy, gravelly and stony loam; 3rd rate.

Vegetation, scattering sage brush and grass.

THE DARLING LINE, 150TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

N. 0.8 lks. to the parallel; thence the 150th Mi. Cor. bears S. 45.5 lks. dist.; on this determination the true line bears S. 89° 41′ W.

REESTABLISHMENT

Thence from the 149th Mi. Cor. S. 89° 41′ W., on a reestablishment of the 150th mile.

Ascend 90 ft. over gradual E. slope, through open country, very little vegetation.

A basalt stone, 8x12x16 ins. above ground, loosely set in mound of stone, no marks, bears South, 97.6 lks. dist.; the closing corner of secs. 22 and 23, T. 32 N., R. 11 E., New Mexico Prin. Mer., New Mexico.

Fence, bears N. and S.

The Carpenter 182nd Mi. Cor. bears North, 28.08 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

Chains

THE DARLING LINE, 150TH MILE

70.50 Top of ascent; descend 8 ft. over gentle W. slope to corner.

80.40 Darling's 150th Mi. Cor.: a basalt stone, 7x8x21 ins., loosely set in mound of stone, mkd. C on N., NM on S., 150 M on E., and on W. face; a basalt stone, 6x6x7 ins., mkd. 150 M, 6 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 150, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and original deposit by S. side of monument.

Land, gently rolling.

Soil, sandy, gravelly and stony loam; 3rd rate.

Vegetation, scattering sage brush and grass.

THE DARLING LINE, 151ST MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.36 N. 0.8 lks. to the parallel; thence the 151st Mi. Cor. bears N. 45° lks. dist.; altitude observation on the sun for azimuth, Oct. 1931; on this determination the true line bears N. 89° 39' W.

REESTABLISHMENT

Thence from the 150th Mi. Cor. N. 89° 39' W., on a reestablishment of the 151st mile.

Over nearly level land, through open country, very little vegetation.

22.40 Begin ascent of 130 ft. over gradual SE. slope.

35.30 Fence, bears N. and S.

43.84 The closing cor. of secs. 21 and 22, T. 32 N., R. 11 E., New Mexico Prin. Mer., Colorado, bears North, 62.3 lks. dist.; a basalt stone 12x8x15 ins. above ground, firmly set in small mound of stone, mkd. CC on N. face.

55.95 The Carpenter 181st Mi. Cor. bears North, 27.71 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument.

THE DARLING LINE, 151ST MILE

Darling's 151st Mi. Cor.: a basalt stone, 8x10x16 ins., lying by mound of stone, mkd. C., NM., 151 M, and 68 on opposite faces:

from which

A conical mound (small mountain), bears N. 35 E., approximately 41 chs. dist.

Ute Mountain, bears S. 52 E.

A conical peak, bears S. 4 06' E.

High point on mountain ridge, bears S. 11 43' E., approximately 25¾ mi. dist.

Mountain ridge, bears S. 4° 52' W.

A conical peak, bears S. 15¼° W.

A conical peak on mountain ridge, bears S. 22¾° W., approximately 30½ mi. dist.

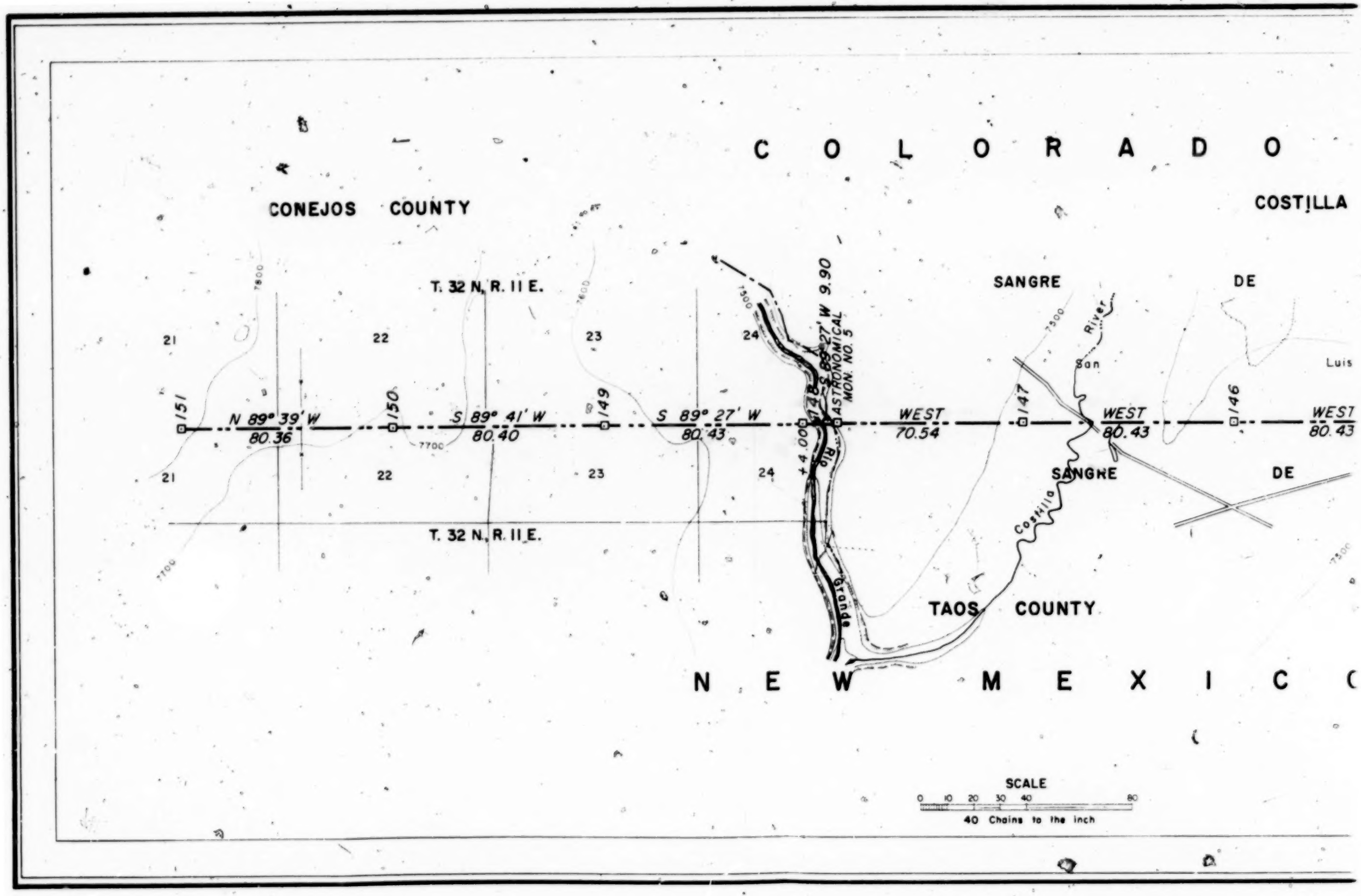
In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 151, 1868-1925, and build a mound of stone around the monument.

Land, gently rolling.

Soil, sandy, gravelly, and stony. 3rd rate.

Vegetation, scattering sage brush and grass.



COLORADO
CONEJOS COUNTY
COSTILLA
T. 32 N., R. 11 E.
SANGRE
DE
21
22
23
24
151
150
149
148
147
146
N 89° 39' W
80.36
S 89° 41' W
80.40
S 89° 27' W
80.43
+4.00
S 89° 27' W 9.90
ASTRONOMICAL MON. NO. 5
WEST
70.54
WEST
80.43
WEST
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7800
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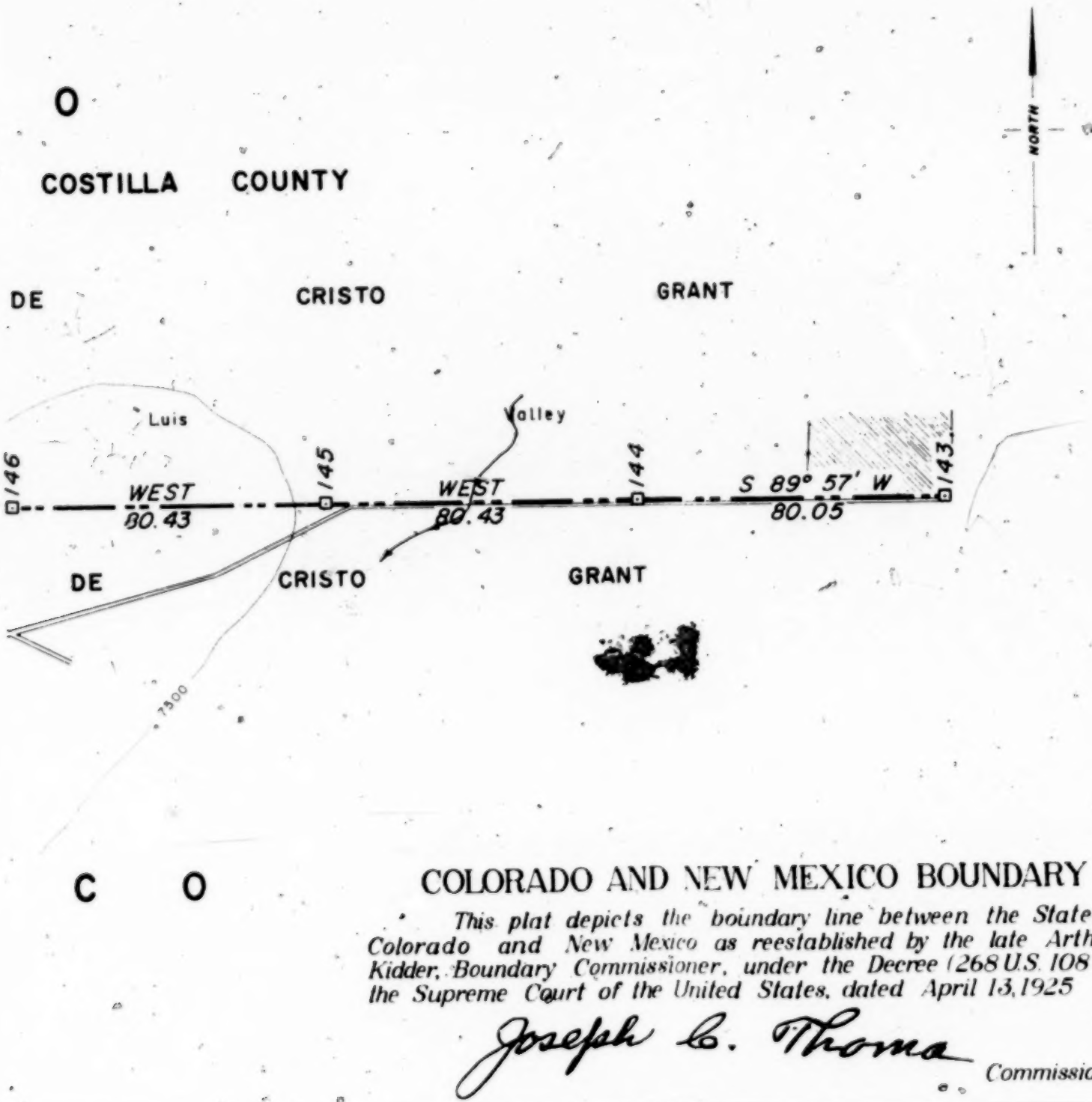
San
River
Luis
Costilla
Rio
Grande
TAOS COUNTY
NEW MEXICO
SCALE
0 10 20 30 40 80
40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner.

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 151

to

MILE CORNER No. 160

THE DARLING LINE, 152ND MILE

Chains *RETRACEMENT*

Altitude observation on the sun for azimuth, Oct. 8, 1931.

West, on a retracement of the Darling boundary, on a tra describing a tangent.

80.24 N. 0.8 lks. to the parallel; thence the 152nd Mi. Cor. bears lks. dist.; on this determination the true line bears S. 89

REESTABLISHMENT

Thence from the 151st Mi. Cor. S. 89° 30' W., on a reestabl of the 152nd mile.

Ascend 430 ft. over gently rolling SE. slope and steep E through open country, very little vegetation.

55.89 The Carpenter 180th Mi. Cor. bears North, 28.03 chs. dist.: post, firmly set in ground and mound of stone; 1 remo monument.

60.00 Thence ascend steep E. slope.

80.24 Darling's 152nd Mi. Cor.; a basalt stone, 8x14x32 ins. above g firmly set in mound of stone, mkd. C on N., NM on S., 15 E., and 68 on W. face; a basalt stone, 8x5x3 ins., mkd. 152 mound of stone.

In place of stone

Construct a concrete monument, in a form 8x11x18 ins., st 9 ins. above ground, set in concrete base, 18x18x12 ins., to with ground surface, with tablet seated in the top marke Corner No. 152, 1868-1925, and build a mound of stone a the monument; reset original stone by W. and original dep S. side of monument; monument is on top of E. edge of mou W., 20 lks. dist. to center of top.

Land, rolling and mountainous.

Soil, gravelly and stony loam; 3rd rate.

Vegetation, scattering sage brush and grass.

THE DARLING LINE, 153RD MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a trans describing a tangent.

Chains

THE DARLING LINE, 153RD MILE

37.00 Hour angle observation of Polaris for azimuth, Oct. 11, 1931.

80.20 N. 0.8 lks. to the parallel; thence the 153rd Mi. Cor. bears S. 6.1 lks. dist.; on this determination the true line bears S. 89° 57′ W.

REESTABLISHMENT

Thence from the 152nd Mi. Cor. S. 89° 57′ W., on a reestablishment of the 153rd mile.

Over mountain top, through open country, very little vegetation.

0.20 Crest of mountain, bears N. 12° W. and S. 34° E.; descend 572 ft. over steep and gradual W. slopes.

15.80 Hillside wash, course SW.

30.00 Foot of steep slope; thence over gradual W. slope.

38.50 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 152 + 38.50 Chs., 1868-1925, and build a mound of stone around the monument.

39.23 Wagon road, bears N. and S.

55.57 The Carpenter 179th Mi. Cor. bears North, 28.16 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

80.20 Darling's 153rd Mi. Cor.; a basalt stone, 4x7x18 ins., lying on ground, mkd. C. and NM. on opposite faces and 68 on one face; a basalt stone, 8x4x4 ins., mkd. 153, 8 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 153, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and deposit by S. side of monument.

Land, mountainous and rolling.

Soil, sandy and gravelly loam, stony; 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

THE DARLING LINE, 154TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit li describing a tangent.

80.40 N. 0.8 lks. to the parallel; thence the 154th Mi. Cor. bears S. lks. dist.; on this determination the true line bears S. 89° 56' W

REESTABLISHMENT

Thence from the 153rd Mi. Cor. S. 89° 56' W., on a reestablishme of the 154th mile.

Descend 25 ft. over nearly level land, through open country, ve little vegetation:

30.30 Dim wagon road, bears N. 20° W. and S. 25° E.

42.18 The closing cor. of secs. 19 and 24, Tps. 32 N., Rs. 10 and 11 E New Mexico Prin. Mer., New Mexico, bears South, 7.7 lks. dist a basalt stone, 6x8x16 ins., loosely set in mound of stone, mkd CC on S. face.

55.47 The Carpenter 178th Mi. Cor. bears North, 28.12 chs. dist.: an iro post, firmly set in ground and mound of stone; I remove th monument.

74.50 Arroyo, course S. 75° W. and N. 20° E.

80.40 Darling's 154th Mi. Cor.; a basalt stone, 8x12x20 ins., loosely s in mound of stone, mkd. C on N., NM on S., 154 M on E., an 68 on W. face; a basalt stone, 3x7x11 ins., mkd. 154, under moun of stone.

In place of stone

Construct a concrete monument, in a form 8x11x18 ins., standin 11 ins. above ground, set in concrete base, 18x18x12 ins., to level with ground surface, with tablet seated in the top marke Mile Corner No. 154, 1868-1925, and build a mound of ston around the monument; reset original stone by W. and origina deposit by S. side of monument.

Land, nearly level.

Soil, sandy and gravelly loam, stony; 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

The Darling Line, 155th Mile

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

N. 0.8 lks. to the paralliel; thence the 155th Mi. Cor. bears N. 1.0 lks. dist.; on this determination the true line bears West.

REESTABLISHMENT

Thence from the 154th Mi. Cor. West, on a reestablishment of the 155th mile.

Ascend 43 ft. over nearly level land, through open country, very little vegetation.

A small mound of stone, none marked, bears North, 11½ lks. dist.

The Carpenter 177th Mi. Cor. bears North, 28.01 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

Irrigation ditch, bears N. 10° E. and S. 10° W.

Darling's 155th Mi. Cor.; a basalt stone, 5x13x26 ins., loosely set in mound of stone, mkd. C on N., NM on S., 155 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 155, 1868-1925, and build a mound of stone around the monument; reset original stone by W. side of monument.

Land, nearly level.

Soil, sandy and gravelly loam, stony; 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

The Darling Line, 156th Mile

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

N. 0.8 lks. to the parallel; thence the 156th Mi. Cor. bears S. 28.9 lks. dist.; on this determination the true line bears S. 89° 48' W.

THE DARLING LINE, 156TH MILE

Chains *REESTABLISHMENT*

Thence from the 155th Mi. Cor. S. 89° 48' W., on a reestablishment of the 156th mile.

Ascend 28 ft. over nearly level land, through open country, very little vegetation.

54.52 The Carpenter 176th Mi. Cor. bears North, 28.21 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument.

80.34 Darling's 156th Mi. Cor.; a basalt stone, 10x10x15 ins., firmly set in mound of stone, mkd. C on N., NM on S., 156 M on E., and 68 on W. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 156, 1868-1925, and build a mound of stone around the monument; reset original stone by W. side of monument.

Land, nearly level.

Soil, sandy, gravelly, stony loam; 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

THE DARLING LINE, 157TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.26 N. 0.8 lks. to the parallel; thence the 157th Mi. Cor. bears N. 2[illegible] lks. dist.; on this determination the true line bears N. 89° 49' W.

REESTABLISHMENT

Thence from the 156th Mi. Cor. N. 89° 49' W., on a reestablishment of the 157th mile.

Over gently rolling land, through open country, very little vegetation.

31.30 Dim wagon road, bears N. 20° W. and S. 20° E.

38.60 House, bears North, 25.74 chs. dist.

54.18 The Carpenter 175th Mi. Cor. bears North, 28.09 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument.

THE DARLING LINE, 157TH MILE

Wagon road, bears N. 11 W. and S. 11 E.; wide draw, course N. 60 E. from S. ~

Dim wagon road, bears NW. and SE.

Darling's 157th Mi. Cor.: a basalt stone, broken in two pieces, bottom piece firmly set in mound of stone, top piece mkd. C., NM., 157 M., and 68 on opposite faces, total dimensions of stone, 8x12x20 ins.; a basalt stone, 3x5x8 ins., faintly mkd. 15, 8 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 157, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and original deposit by S. side of monument.

Land, gently rolling.

Soil, sandy, gravelly, stony loam; 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

THE DARLING LINE, 158TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

N. 0.8 lks. to the parallel; thence the 158th Mi. Cor. bears S. 6.9 lks. dist.; on this determination the true line bears S. 89° 57' W.

REESTABLISHMENT

Thence from the 157th Mi. Cor. S. 89° 57' W., on a reestablishment of the 158th mile.

Ascend 75 ft. over gradual E. slope, through open country, very little vegetation.

A stone mound, 3½x4½x2 ft. above ground, noted by Darling, bears South, 4.45 chs. dist.

The Carpenter 174th Mi. Cor. bears North, 27.95 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

Chains

THE DARLING LINE, 158TH MILE

80.34 Darling's 158th Mi. Cor.: a basalt stone, 6x14x26 ins., nearly bur in soil, with 158 M up, mkd. C., NM., 158 M. and 68 on oppos faces; a basalt stone, 4x6x8 ins., mkd. 158, 6 ins. below the s face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 in the ground, with tablet seated in the top marked Mile Corn No. 158, 1868-1925, and build a mound of stone around the mo ment; re-set original stone by W. and deposit by S. side of mo ment.

Land, gradual E. slope.

Soil, sandy, gravelly, stony loam; 3rd rate

Vegetation, scattering sage brush, grease wood, and grass

THE DARLING LINE, 159TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit l describing a tangent.

80.34 N. 0.8 lks. to the parallel; thence the 159th Mi. Cor. bears S. 5 lks. dist.; on this determination the true line bears S. 89° 38' W

REESTABLISHMENT

Thence from the 158th Mi. Cor. S. 89° 38' W., on a reestablishme of the 159th mile.

Ascend 29 ft. over nearly level land, through open country, ver little vegetation.

46.00 Thence descend 4 ft. over nearly level land to corner.

53.62 The Carpenter 173rd Mi. Cor. bears North 28.24 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

80.34 Darling's 159th Mi. Cor.: a basalt stone, 8x9x16 ins., firmly set mound of stone, mkd. C on N., NM on S., 159 M on E., and on W. face; a basalt stone, white on one side, 4x5x5 ins., mk 159 on white side, 6 ins. below the surface;

from which

A bare conical mountain, bears N. 9° E., approximately 2 mi. dist

THE DARLING LINE, 159TH MILE

Point of mountain ridge, bears N. 18¼ E., approximately 11 mi. dist.

Point of mountain ridge, near Rio Grande, bears N. 67 E., approximately 7½ mi. dist.

Ute Mountain, bears S. 73¼ E.

Conical peak on San Antonia Mountain, bears S. 30 23' W.

Mogote Peak, bears N. 68 56' W., approximately 15 mi. dist.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 159, 1868-1925, and build a mound of stone around the monument.

Land, nearly level.

Soil, sandy, gravelly, stony loam, 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

THE DARLING LINE, 160TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

N. 0.8 lks. to the parallel; thence the 160th Mi. Cor. bears S. 24.3 lks. dist.; on this determination the true line bears S. 89 50' W.

REESTABLISHMENT

Thence from the 159th Mi. Cor. S. 89 50' W., on a reestablishment of the 160th mile.

Ascend 49 ft. over nearly level land, through open country, very little vegetation.

The closing cor. of secs. 19 and 24, Tps. 32 N., Rs. 9 and 10 E., New Mexico Prin. Mer., New Mexico, bears South, 10.5 lks. dist.; a basalt stone, 6x12x14 ins., firmly set in mound of stone, mkd. CC on S. face.

The Carpenter 172nd Mi. Cor. bears North, 28.53 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

Chains THE DARLING LINE, 160TH MILE

80.37 Darling's 160th Mi. Cor.: a basalt stone, 8x12x22 ins., with top broken, loosely set in mound of stone, mkd. C on N., 160 M on E. and 68 on W. face; a basalt stone, 3x6x12 ins., no marks, under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 160, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and deposit by S. side of monument.

Land, nearly level.

Soil, sandy, gravelly, stony loam: 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

C O L O R A D O

COSTILLA COUNTY

T. 32 N., R. 9 E.
T. 32 N., R. 10 E.

160 — S 89° 50' W 80.37 — 159 — S 89° 38' W 80.34 — 158 — S 89° 57' W 80.34 — 157 — N 89° 49' W 80.26 — 156 — S 89° 48' W 80.34 — 155 — WEST 80.50 — 154

7800 7700

24 19 20 21 22 23 24

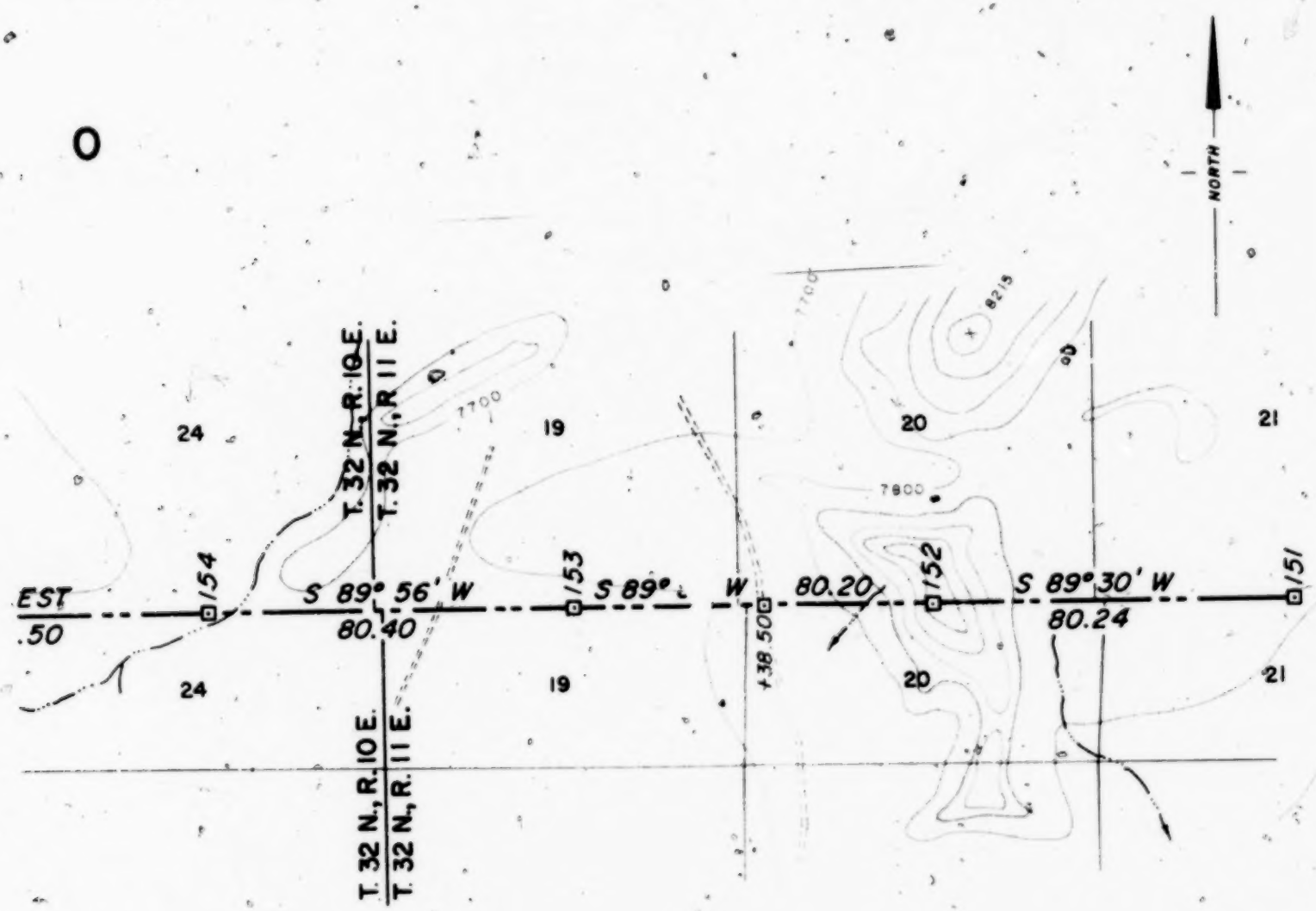
T. 32 N., R. 9 E.
T. 32 N., R. 10 E.

24 19 20 21 22 23 24

TAOS COUNTY

N E W M E X I C O

SCALE
0 10 20 30 40 80
40 Chains to the inch

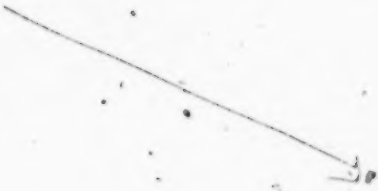


COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner



COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 160

to

MILE CORNER No. 168

THE DARLING LINE, 161ST MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

15.03 Hour angle observation of Polaris for azimuth, Oct. 12, 1931.

80.07 N. 0.8 lks. to the parallel; thence the 161st Mi. Cor. bears S. 17.7 lks. dist.; on this determination the true line bears S. 89° 52′ W.

REESTABLISHMENT

Thence from the 160th Mi. Cor. S. 89° 52′ W., on a reestablishment of the 161st mile.

Ascend 49 ft. over nearly level land, through open country, very little vegetation.

17.00 Construct a concrete monument, in a form 16x24x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 160 + 17 Chs., 1868-1925, and build a mound of stone around the monument.

17.74 Wagon road, bears N. 23° W. and S. 23° E.

41.69 A basalt stone, 6x10x12 ins. above ground, firmly set in mound of stone, mkd. BL on N. face.

45.65 The closing cor. of secs. 23 and 24, T. 32 N., R. 9 E., New Mexico Prin. Mer., New Mexico; a basalt stone, 3x10x14 ins. above ground, firmly set in mound of stone, mkd. CC on S. face.

52.98 The Carpenter 171st Mi. Cor. bears North, 27.84 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

80.07 Darling's 161st Mi. Cor.; a basalt stone, 7x11x21 ins., lying on mound of stone, mkd. C., NM., 161 M, and 68 on opposite faces; a basalt stone, 5x6x12 ins., no marks, under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 161, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and deposit by S. side of monument.

Land, nearly level.

hains

THE DARLING LINE, 161ST MILE

Soil, sandy, gravelly, stony loam; 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

THE DARLING LINE, 162ND MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

39.62 N. 0.2 lks. to the parallel; thence the Darling witness stone set alongside the old Santa Fe trail bears N. 15 lks. dist.; on this determination the true line bears N. 89° 47′ W.

RETRACEMENT

West, continuing on a retracement of the Darling boundary, on a transit line describing a tangent.

40.88 N. 0.2 lks. to the parallel; thence the 162nd Mi. Cor. bears S. 17.4 lks. dist.; on this determination the true line bears S. 89° 45′ W.

REESTABLISHMENT

Thence from the 161st Mi. Cor. N. 89° 47′ W., on a reestablishment of the 162nd mile.

Ascend 53 ft. over nearly level land, through open country, very little vegetation.

39.62 Darling's road monument; a basalt stone, 6x8x18 ins., lying on ground by mound of stone, mkd. C., and NM. on opposite faces.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 161 + 39.62 Chs., 1868-1925, and build a mound of stone around the monument; reset original stone by W. side of monument.

REESTABLISHMENT

S. 89° 45′ W., continuing on a reestablishment of the 162nd mile, with new measurement.

Over level land, descending 3 ft. to corner.

0.10 Old road from Conejos, Colorado, to Santa Fe, New Mexico, bears N. and S.

2.15 The closing cor. of secs. 22 and 23, T. 32 N., R. 9 E., New Mexico Prin. Mer., Colorado, bears North, 2.3 lks. dist.: a basalt stone,

Chains THE DARLING LINE, 162ND MILE

3x8x18 ins. above ground, firmly set in mound of stone, mkd. Bl. on N. face.

13.23 The position for the Carpenter 170th Mi. Cor. bears North, 26.93 chs. dist.; iron post not found; a mound of stone; I scatter the mound.

40.88 Darling's 162nd Mi. Cor.; a basalt stone, 7x12x13 ins., lying by mound of stone, top broken, remaining marks NM on one face and 162 on one face.

In place of stone

Construct a concrete monument, in a form 8x11x18 ins., standing 20 ins. above ground, set in concrete base, 12x12x16 ins., top 4 ins. above ground surface, with tablet seated in the top marked Mile Corner No. 162, 1868-1925, and build a mound of stone around the monument; reset original stone by W. side of monument.

Land, nearly level.

Soil, sandy, gravelly, stony loam; 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

THE DARLING LINE, 163RD MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.33 N. 0.8 lks. to the parallel; thence the 163rd Mi. Cor. bears S. 36.1 lks. dist.; on this determination the true line bears S. 89° 45′ W.

REESTABLISHMENT

Thence from the 162nd Mi. Cor. S. 89° 45′ W., on a reestablishment of the 163rd mile.

Ascend 53 ft. over nearly level land, through open country, very little vegetation.

45.22 The closing cor. of secs. 21 and 22, T. 32 N., R. 9 E., New Mexico Prin. Mer., New Mexico, bears South, 3.8 lks. dist.; a basalt stone, 9x9x8 ins. above ground, firmly set in mound of stone, mkd. CC on S. face.

Chains THE DARLING LINE, 163RD MILE

52.30 The position for the Carpenter 169th Mi. Cor. bears North, 28.82 chs. dist.; iron post not found; a mound of stone; I scatter the mound.

75.08 A conical peak, bears S. 7 52' E.
A conical peak, bears S. 10 E.; descend 6 ft. to corner.

80.33 Darling's 163rd Mi. Cor.; a basalt stone, 3x10x23 ins., firmly set in mound of stone, mkd. C on N., NM on S., 163 M on E., and 68 on W. face; a basalt stone, 3x7x8 ins., mkd. with cross (+), 6 ins. below the surface.

In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 163, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and deposit by S. side of monument.

Land, nearly level.
Soil, sandy, gravelly, stony loam; 3rd rate.
Vegetation, scattering sage brush, grease wood, and grass.

THE DARLING LINE, 164TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

65.40 N. 0.5 lks. to the parallel; the Darling witness stone has become obliterated.

80.30 N. 0.8 lks. to the parallel; thence the 164th Mi. Cor. bears S. 35.0 lks. dist.; on this determination the true line bears S. 89° 45' W.

REESTABLISHMENT

Thence from the 163rd Mi. Cor. S. 89° 45' W., on a reestablishment of the 164th mile.

Over nearly level land, through open country, very little vegetation.

20.35 Railroad state line marker, bears North, 9½ lks. dist.; a sandstone, 10 ins. sq., standing 6 ft. above the ground surface.

20.46 Telephone and telegraph line, parallel with railroad.

Chains

THE DARLING LINE, 164TH MILE

20.93 Denver and Rio Grande Western railroad, bears N. 9° 39' W. and S. 9° 39' E., elevation 8039 ft.

22.00 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 163 + 22 Chs., 1868-1925, and build a mound of stone around the monument; ascend 20 ft. to corner.

23.02 Colorado highway No. 163, bears N. 18¾° W. and New Mexico highway No. 74, bears S. 18¾° E.

45.34 The closing cor. of secs. 20 and 21, T. 32 N., R. 9 E., New Mexico Prin. Mer., New Mexico, bears North, 8 lks. dist.; a basalt stone, 8x11x14 ins., loosely set in mound of stone, mkd. CC on S. face.

51.74 The Carpenter 168th Mi. Cor. bears North, 25.93 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

65.10 Old road, bears N. 10° W. and S. 3° E.

76.20 Wagon road, bears N. 35° E. and SW.

80.30 Darling's 164th Mi. Cor.; a basalt stone, 7x8x20 ins., lying by mound of stone, mkd. C., NM., 164 M, and 68 on opposite faces.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 164, 1868-1925, and build a mound of stone around the monument; reset original stone by W. side of monument; corner is at the SE. cor. of a fence, bearing N. and W.

Land, nearly level.

Soil, sandy, gravelly, stony loam; 3rd rate.

Vegetation, scattering sage brush, grease wood, and grass.

THE DARLING LINE, 165TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 165th Mi. Cor. has become obliterated. Meridian observation of the sun for apparent noon, Oct. 23, 1931.

Chains THE DARLING LINE, 165TH MILE

160.00 N. 3.0 lks. to the parallel; the 166th Mi. Cor. has become obliterated.

240.00 N. 6.8 lks. to the parallel; the 167th Mi. Cor. has become obliterated.

261.89 Hour angle observation of Polaris for azimuth, Oct. 23, 1931.

321.52 N. 12.2 lks. to the parallel; thence the 168th Mi. Cor. bears S. 137.8 lks. dist.; on this determination the true line bears S. 89° 45' W.

REESTABLISHMENT

Thence from the 164th Mi. Cor. S. 89° 45' W., on a reestablishment of the 165th mile.

Over nearly level mesa top, along a fence, very little vegetation.

51.29 The Carpenter 167th Mi. Cor. bears North, 25.36 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

57.25 Wagon trail, bears N. 20° E. and S. 37° W.

73.14 The Carpenter Astronomical Monument No. 4, bears North, 25.25 chs. dist.; a limestone, 9x12x66 ins., firmly set in ground and mound of stone; I obliterate the marks and bury the stone.

73.90 East rim of small canon, bears N. 19° W. and S. 16° W.; W. end of fence line; descend 95 ft. over steep W. slope.

79.00 Small canon, course N.; ascend 17 ft. over E. slope.

79.45 Wagon road, bears N. 4° E. and S. 24° W.

80.38 The proportional point; corner stone destroyed (Carpenter 162nd Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 165, 1868-1925, and build a mound of stone around the monument.

Land, nearly level mesa and canon.

Soil, sandy, gravelly, stony loam; 3rd rate.

Vegetation, scattering sage brush and grass.

THE DARLING LINE, 166TH MILE

Chains *REESTABLISHMENT*

S. 89 45' W., on a reestabiishment of the 166th mile.
Ascend 138 ft. over steep E. slope, through open country, very litte vegetation.

3.20 West rim of canon, bears N. 8 W. and curving SW.; thence ascen gradual E. slope on mesa.

37.00 Top of ascent; descend 145 ft. over W. slope.

37.50 West rim of mesa, overlooking Ortiz village, bears N. 52° E. and S. 29° W.; descend steep W. slope.

41.15 Wagon trail, bears N. 10° E. and S. 10° W.

41.50 East bank of San Antonio River, bears N. 10° E. and S. 10° W stream 40 lks. wide, course N. 10° E.

42.40 West bank of river, bears N. 10° E. and S. 10° W.; ascend 16 f. along N. slope.

43.28 Fence cor., bears N., 4 lks. dist., fences SW., N. 53° E., and W.

51.43 The Carpenter 166th Mi. Cor. bears North, 26.52 chs. dist. (computed); an iron post, firmly set in ground and mound of earth I remove this monument.

53.07 Fence, bears N. 6° W. and S. 6° E.

53.16 Ortiz road, bears N. 6° W. and S. 6° E.

53.60 Construct a concrete monument, in a form 16x24x36 ins., set 24 in. in the ground, with tablet seated in the top marked Mile Corner No. 165 + 53.60 Chs., 1868-1925, and build a mound of stone around the monument.

53.74 Fence cor., bears N., 2 lks. dist., fences N., S., and W.; enter cultivated fields N. and S. of fence.

66.23 Fence cor., bears N., 2 lks. dist., fences E., W., and N. 10° W leave cultivated fields N. of fence.

68.20 Enter scattering cottonwood timber along river.

74.20 Los Pinos River, bears N., 2.80 chs. dist., course N. 80° E. from NW.

78.60 Leave timber along river.

Chains

THE DARLING LINE, 166TH MILE

80.38 The proportional point; unable to identify Darling's 166th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., standing 34 ins. above ground, set in a concrete base, 18x18x15 ins., top level with ground surface, with a concrete sub-base, 24x24x6 ins., 21 ins. in the ground, with tablet seated in the top marked Mile Corner No. 166, 1868-1925.

Land, E. half broken, W. half nearly level bottom.

Soil, sandy, gravelly, stony loam; 1st and 3rd rate.

Timber, cottonwood; undergrowth, scattering sage brush.

THE DARLING LINE, 167TH MILE

REESTABLISHMENT

S. 89° 45' W., on a reestablishment of the 167th mile.

Ascend 22 ft. over nearly level bottom land, along an E. and W. fence, cultivated fields S. and sage brush N. of fence.

2.50 Fence cor., bears N., 2 lks. dist.; fences E., N., and S., 47 lks. dist. fence W. from N. and S. fence.

5.18 Fence cor., bears S., 46 lks. dist., fences E., W., and N.; enter cultivated field N. of fence.

18.50 Leave cultivated field N. of fence.

18.98 NW. cor. of house, bears N., 41 lks. dist.

19.23 NE. cor. of house, bears N., 41 lks. dist.

21.88 Enter scattering cottonwood timber along river; fence, bears N. and S.

28.39 Fence, bears N. 20° E. and S. 20° W.

28.45 Right bank of Los Pinos River, bears N. 20° E. and S. 20° W.; course of stream N. 20° E.

29.30 Left bank of river, bears N. 20° E. and S. 20° W.

31.40 Wagon trail, bears NE. and SW.

31.52 Fence, bears NE. and SW.

33.72 Irrigation ditch, 3 lks. wide, course N. 30° E.

34.00 Leave timber, enter cultivated field, bears N. 35° E. and SW.

Chains

THE DARLING LINE, 167TH MILE

50.84 Thence North, 28.40 chs. dist.; the Carpenter 165th Mi. Cor. had been removed; found iron post, lying loose on ground; I remove the post from the vicinity.

54.50 Irrigation ditch, 20 lks. wide, course N. 20° E.

80.38 The proportional point; unable to identify Darling's 167th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., standing 34 ins. above ground, set in a concrete base, 23x18x15 ins., top level with ground surface, with tablet seated in the top marked Mile Corner No. 167, 1868-1925.

Land, nearly level bottom.

Soil, sandy loam; 1st rate.

Timber, cottonwood; undergrowth, sage brush.

THE DARLING LINE, 168TH MILE

REESTABLISHMENT

S. 89° 45' W., on a reestablishment of the 168th mile.

Ascend 375 ft. over gradual NE. slope and steep E. slope, through field.

11.36 Irrigation ditch, 5 lks. wide, course N. 39° W.; leave field.

19.15 Road, bears NW. and SE.

20.50 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 167 + 20.50 Chs., 1868-1925, and build a mound of stone around the monument.

29.45 Arroyo, course NE.

33.00 Leave bottom; begin ascent of steep E. slope.

42.83 The Carpenter 164.1 Mi. Cor. bears North, 23.94 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

43.30 West rim of valley, overlooking Ortiz village; thence ascend gradual E. slope over mesa.

59.85 Wagon trail, bears N. 42¾° E. and S. 42½° W.

77.14 Railroad state line marker, bears North, 1 lk. dist.; a sandstone, 10x10x40 ins. above ground, firmly set.

Chains THE DARLING LINE, 168TH MILE

77.37 Denver and Rio Grande Western Railroad, curving from SW. to NW. to SW.; elevation 8396 ft.

80.38 Darling's 168th Mi. Cor.; a basalt stone, 4x7x9 ins., mkd. 168 M. 8 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 168, 1868-1925, and build a mound of stone around the monument; reset original deposit stone by S. side of monument.

Land, E. part nearly level valley, W. part broken and mountainous.

Soil, sandy loam; 1st rate, and sandy, gravelly, stony loam; 3rd rate.

Vegetation, sage brush and grass.

C O L O R A D O

CONEJOS COUNTY

T. 32 N., R. 8 E.

T. 32 N., R. 9 E.

Ortiz

Los Pinos

Pinos River

San Antonio River

DENVER & RIO GRANDE RR

285

163

74

22 23 24 19 20 21

S 89° 45' W 80.38

S 89° 45' W 80.30

+20.50

+22.00

+53.60

8000 8200 8400

RIO ARRIBA COUNTY

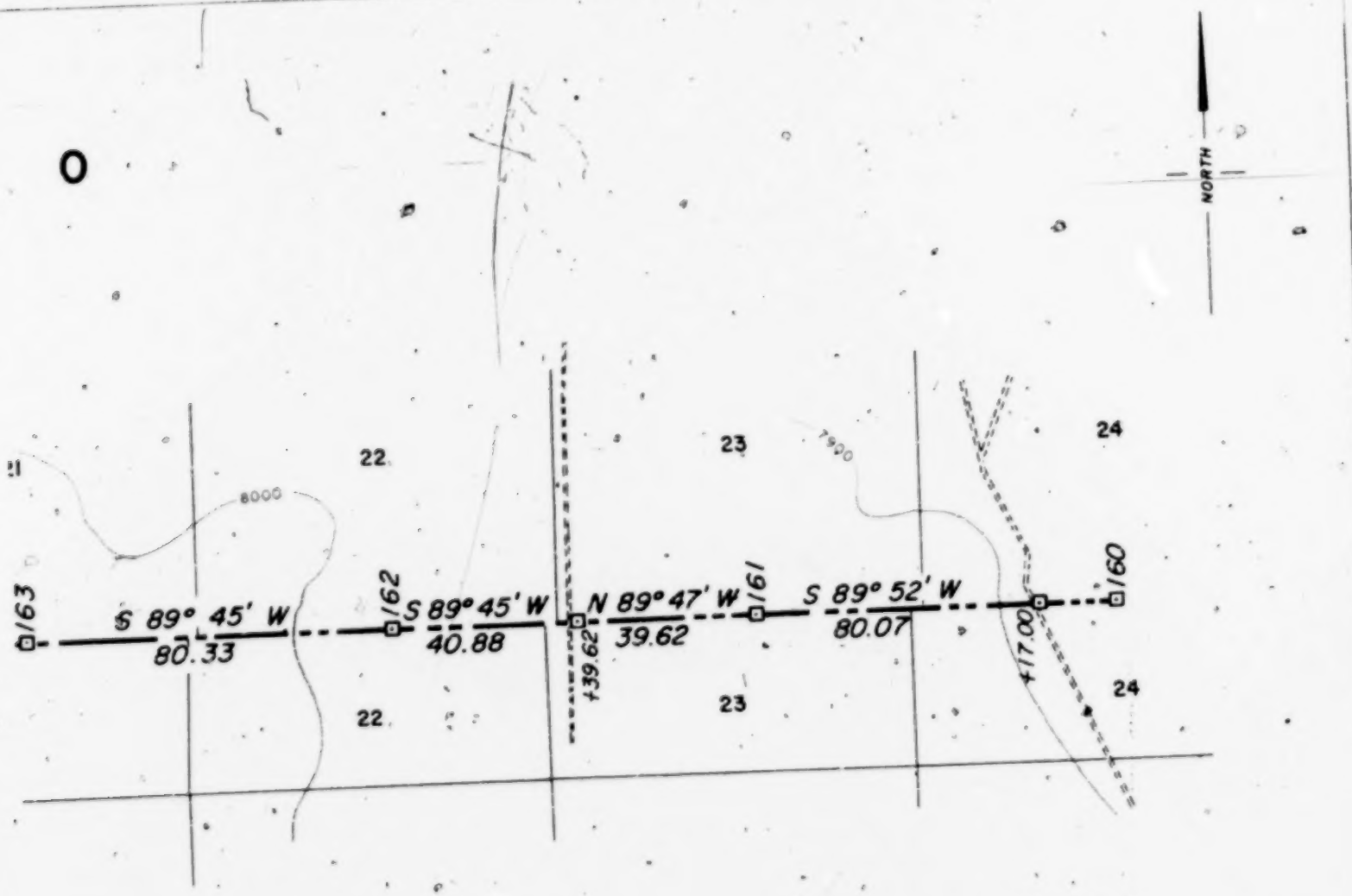
TAOS

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch



TAOS COUNTY

C O

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 168

to

MILE CORNER No. 176

THE DARLING LINE, 169TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 169th Mi. Cor. has become obliterated.

160.48 N. 3.0 lks. to the parallel; thence the 170th Mi. Cor. bears S. 97.1 lks. dist.; on this determination the true line bears S. 89° 39′ W.

REESTABLISHMENT

Thence from the 168th Mi. Cor. S. 89° 39′ W., on a reestablishment of the 169th mile.

Ascend 11 ft. over gentle NE. slope, through sage brush.

7.90 Top of ascent; descend 152 ft. over NW. slope.

8.30 West rim of mesa, bears N. 50° E. and S. 70° W.

11.05 Denver and Rio Grande Western Railroad, curving N. 61¼° E. and S. 66¼° W.

38.60 Foot of descent; ascend 73 ft. over gradual NE. slope.

49.26 The Carpenter 163rd Mi. Cor. bears North, 30.46 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

75.88 Railroad state line marker, bears South, 15½ lks. dist.; a sandstone, 10x10x27 ins. above ground, firmly set.

76.33 Denver and Rio Grande Western Railroad, curving from NW. to SE.; elevation 8321 ft.

80.24 The proportional point; unable to identify Darling's 169th Mi. Cor.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 169, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 4 ins. diam., bears N. 89¼° E., 96 lks. dist., mkd. COLO 169 M BT.

A pinon, 4 ins. diam., bears S. 43¾° W., 73 lks. dist., mkd. NM 169 M BT.

Land, rolling mountainous.

Soil, sandy, gravelly, stony loam; 3rd rate.

ains

THE DARLING LINE, 169TH MILE

Vegetation, sage brush and grass, with few scattering pinon at W. end of mile.

THE DARLING LINE, 170TH MILE

REESTABLISHMENT

S. 89° 39′ W., on a reestablishment of the 170th mile.

Ascend 120 ft. over gradual NE. slope, through scattering timber and undergrowth.

.29 The Carpenter 162nd Mi. Cor. bears North, 32.14 chs. dist.; an iron post, firmly set in ground and mound of stone: I remove this monument.

.00 Top of ascent; descend 13 ft. over NW. slope.

.00 Arroyo, course N. 60° E.; ascend 77 ft. over SE. slope.

.24 Darling's 170th Mi. Cor.; a basalt stone, 8x10x12 ins., lying near mound of stone, mkd. C. on one face and 68 on one face; a basalt stone, 7x8x12 ins., mkd. with a cross (+), 12 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 170, 1868-1925, and build a mound of stone around the monument.

Land, rolling mountainous.

Soil, sandy, gravelly, stony loam; 3rd rate.

Timber, scattering pinon; undergrowth, sage brush.

THE DARLING LINE, 171ST MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

7 N. 0.8 lks. to the parallel; thence the 171st Mi. Cor. bears S. 23.6 lks. dist.; on this determination the true line bears S. 89° 50′ W.

THE DARLING LINE, 171ST MILE

REESTABLISHMENT

Chains

Thence from the 170th Mi. Cor. S. 89° 50' W., on a reestablishment of the 171st mile.

Ascend 125 ft. over gradual NE. slope, through scattering sage brush.

40.20 Wagon trail, bears N. 55° E. and S. 55° W.

43.43 The closing cor. of secs. 19 and 20, T. 32 N., R. 8 E., New Mexico Prin. Mer., New Mexico, bears North, 83 lks. dist.; a sandstone, 7x12x14 ins., loosely set in mound of stone, marked with five notches on E., one notch on W., and NM CC on S. face.

49.35 The Carpenter 161st Mi. Cor. bears North, 32.65 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

51.00 Top of ascent; descend 40 ft. over NW. slope.

60.55 Arroyo, course N. 35° W.

68.30 Arroyo, course NE.; ascend 73 ft. over SE. slope.

80.27 Darling's 171st Mi. Cor.: a basalt stone, 4x5x7 ins., mkd. with a cross (+), 6 ins. below the surface, and under mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 171, 1868-1925, and build a mound of stone around the monument; reset original deposit stone by S. side of monument.

Land, rolling mountainous.

Soil, sandy, gravelly, stony loam; 3rd rate.

Vegetation, sage brush and grass.

THE DARLING LINE, 172ND MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.29 N. 0.8 lks. to the parallel; thence the point for the 172nd Mi. Cor. bears N. 8.6 lks. dist.; altitude observation on the sun for azimuth.

July 8, 1931; on this determination the true line bears N. 89° 56' W.

THE DARLING LINE, 172ND MILE

REESTABLISHMENT

Thence from the 171st Mi. Cor. N. 89° 56' W., on a reestablishment of the 172nd mile.

Ascend 133 ft. over NE. and along N. slopes, through sage brush.

1.55 Telephone and telegraph line, bears N. 28° 10' W. and S. 28° 10' E.

2.22 Denver and Rio Grande Western Railroad, bears N. 27° 23' W. and S. 27° 23' E.

2.55 Railroad state line marker, bears South, 5 lks. dist.; a sandstone, 9x9x32 ins. above ground, firmly set, mkd. C on N., NM on S., and with a cross (+) on top; thence along N. slope.

2.77 The closing cor. of Tps. 32 N., Rs. 7 and 8 E., New Mexico Prin. Mer., New Mexico; an iron post, 3 ins. diam., 12 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record; thence descend 70 ft. along NW. slope.

3.06 The Carpenter 160th Mi. Cor. bears North, 32.82 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

5.00 Draw, drains N. 75° E.; ascend 63 ft. over SE. slope.

8.00 Top of ascent; descend 26 ft. over N. slope to corner.

8.54 Denver and Rio Grande Western Railroad bears N. 66¼° E. and S. 66¼° W.

9.04 South edge of railroad state line marker; a sandstone, 8x8x40 ins. above ground, firmly set, marked with a chiseled notch E. and W. on top.

9.29 The point for Darling's 172nd Mi. Cor.; determined by proportionate distance between 171st and 174th Mi. Cors. and at a point due West of the railroad state line marker for position in latitude; this point coincides with the point for the 172nd Mi. Cor., as shown on the plats of the railroad survey made in 1880; and is accepted by me as the best available evidence of the position for Darling's 172nd Mi. Cor.

At point for corner

Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner

Chains

THE DARLING LINE, 172ND MILE

No. 172, 1868-1925, elevation 8800 ft.:
from which
SE. cor. of frame house, bears N. 32° 55' E., 4.91 chs. dist.
SW. cor. of frame house, bears N. 24° 26' E., 6.31 chs. dist.; the are railroad houses at Big Horn station.
Land, rolling mountainous.
Soil, gravelly and stony loam and clay; 3rd rate.
Timber, very scattering pine; undergrowth, sage brush.

THE DARLING LINE, 173RD MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 8, 1931.
West, on a retracement of the Darling boundary, on a transit lin describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 173rd Mi. Cor. has become obliterated

119.00 Altitude observation on the sun for azimuth, July 8, 1931.

160.58 N. 3.0 lks. to the parallel; thence the 174th Mi. Cor. bears S. 123. lks. dist.; on this determination the true line bears S. 89° 34' W.

REESTABLISHMENT

Thence from the 172nd Mi. Cor. S. 89° 34' W., on a reestablishment of the 173rd mile.
Ascend 67 ft. over gentle NE. slope, through sage brush.

0.50 Road from Antonito, Colo., bears N. 40¾° E. and S. 39° W.

3.45 Denver and Rio Grande Western Railroad in a curve from NE. t NW. to NE.

7.50 Same road, in a curve from SE. to NW.

19.90 Top of ascent; descend 20 ft. over NW. slope; enter scattering timber.

31.50 Same road, bears N. 75° E. and S. 75° W.

32.25 Arroyo, course N. 75° E.; ascend 115 ft. along S., N., and SE. slopes

38.97 Basalt boulder, in place, 10x6x4 ft. above ground, bears North, 6 lks. dist.

42.67 The closing cor. of secs. 23 and 24, T. 32 N., R. 7 E., New Mexico Prin. Mer., New Mexico; an iron post, 2 ins. diam., 9 ins. above

Chains

THE DARLING LINE, 173RD MILE

ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.

45.56 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 172 + 45.56 Chs., 1868-1925:

from which

A pine, 24 ins. diam., bears S. 3½ E., 34 lks. dist., mkd. WP NM BT.

51.24 The Carpenter 159th Mi. Cor. bears North, 33.33 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

52.70 Gulch, course SE., from N. 85 W.; thence along N. slope.

60.30 Same gulch, course N. 70 E.; thence over SE. slope.

80.29 The proportional point; unable to identify Darling's 173rd Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 173, 1868-1925:

from which

Trimmed tree on Big Horn Peak, bears S. 31 16′ W., 53.34 chs. dist., vertical angle + 7 23′; position for United States Geological Survey triangulation station directly under this tree.

Geographic position as published:

North Latitude 36 59′ 11.77″
West Longitude 106 10′ 44.85″

A pine, 26 ins. diam., bears N. 87 W., 197 lks. dist., mkd. COLO 173 M BT.

Land, rolling mountainous.

Soil, gravelly and stony loam and clay; 3rd rate.

Timber, aspen clumps and scattering pine; undergrowth, sage brush.

THE DARLING LINE, 174TH MILE

REESTABLISHMENT

S. 89 34′ W., on a reestablishment of the 174th mile.

Descend 3 ft. along gentle S. slope, through scattering timber and undergrowth.

Chains THE DARLING LINE, 174TH MILE

5.00 Flat drain, course SE.; ascend 62 ft. over gentle SE. and E. slopes.

26.39 Telephone and telegraph line, bears N. 27° E. and S. 11° W.

26.81 Railroad state line marker, bears South, 3.2 lks. dist.; a sandston 9x9x45 ins. above ground, firmly set, marked with a chiseled notc E. and W. on top.

27.30 Denver and Rio Grande Western Railroad, curving N. 20° E. to NE and S. 5½° W. to SE.

28.58 Wagon trail, bears N. 18½° E. and S. 11° W.

33.70 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins in the ground, with tablet seated in the top marked Mile Corne No. 173 + 33.70 Chs., 1868-1925;

from which

A pine, 24 ins. diam., bear S. 40° W., 126 lks. dist., mkd. WP NM BT.

A pine, 27 ins. diam., bears N. 74¾° W., 166 lks. dist., mkd. WP COLO BT.

Monument stands on the divide between the Conejos and Los Pinos Rivers, bearing N. 50° W. and S. 30° E., elevation 9030 ft.; descend 210 ft. over W. slope.

42.64 The closing cor. of secs. 22 and 23, T. 32 N., R. 7 E., New Mexico Prin. Mer., New Mexico; an iron post, 2 ins. diam., 9 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.

51.02 The Carpenter 158th Mi. Cor. bears North, 34.10 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

54.50 Arroyo, in canon, course N. 5° E. turning to N. 15° W.; ascend 75 ft. over E. slope.

68.10 Crest of spur, slopes N. 35° E.; descend 33 ft. along N. slope.

80.29 Darling's 174th Mi. Cor.; a basalt stone, 14x13x6 ins. lying on ground, mkd. C., NM., 174 M, and 68 on opposite faces; a basalt stone, 10x9x6 ins., mkd. 174 M, 6 ins. below the surface;

from which

A rotted pine stump, 16 ins. diam., bears N. 68° E., 31 lks. dist.

A spruce stump, 20 ins. diam., bears S. 22° W., 78 lks. dist., mkd.

Chains

THE DARLING LINE, 174TH MILE

NM 174 M BT.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 174, 1868-1925; reset original stone by W. and original deposit by S. side of monument;

from which

A pine, 12 ins. diam., bears S. 38¼° E., 56 lks. dist., mkd. NM 174 M BT.

A pine, 16 ins. diam., bears N. 20½° W., 307 lks. dist., mkd. COLO 174 M BT.

Land, mountainous.

Soil, gravelly and stony loam; 2nd and 3rd rate.

Timber, scattering pine, spruce, and aspen; undergrowth, sage brush.

THE DARLING LINE, 175TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 15, 1931.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.43 N. 0.8 lks. to the parallel; thence the 175th Mi. Cor. bears S. 99.1 lks. dist.; on this determination the true line bears S. 89° 18′ W.

REESTABLISHMENT

Thence from the 174th Mi. Cor. S. 89° 18′ W., on a reestablishment of the 175th mile.

Along a gentle N. slope, through timber and undergrowth.

1.80 Small canon, course N. 55° E.; ascend 136 ft. over steep E. slope.

15.90 Crest of ridge, bears N. 25° E. and S. 15° W.; descend 113 ft. over N. 70° W. slope.

28.35 Canon, course N. 20° E.; ascend 163 ft. over E. slope.

42.31 The closing cor. of secs. 21 and 22, T. 32 N., R. 7 E., New Mexico Prin. Mer., New Mexico; an iron post, 2 ins. diam., 9 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.

Chains THE DARLING LINE, 175TH MILE

43.10 Wagon road, bears N. 20° E. and S. 31½° W.

47.80 Crest of spur, slopes N. 50° E.; descend 50 ft. over NW. slope.

50.52 The Carpenter 157th Mi. Cor. bears North, 35.16 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

59.00 Canon, course N. 50° E.; ascend 34 ft. over SE. slope.

61.83 Beginning of Forest Service drift fence, bears N. 20° E., on small spur, and turns W. near line; descend 12 ft. over W. slope.

64.25 Head of draw, course N.; ascend 120 ft. over E. slope.

72.30 Crest of ridge, bears N. and S.; descend 46 ft. over NW. slope.

80.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked WC Mile Corner No. 175 + 0.44 Chs. E., 1868-1925;
from which
A pine, 8 ins. diam., bears S. 28¼° W., 84½ lks. dist., mkd. WC NM 175 M BT.
A pine, 19 ins. diam., bears N. 27° W., 26 lks. dist., mkd. WC COLO 175 M BT.

80.44 Darling's 175th Mi. Cor.; a spruce tree, 32 ins. diam., mkd. 175 M on E. face, blazes on each face.
Land, mountainous.
Soil, gravelly and stony loam; 2nd rate.
Timber, pine, spruce, and aspen; undergrowth, young timber and sage brush.

THE DARLING LINE, 176TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 16, 1931.
West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.72 N. 0.8 lks. to the parallel; thence the 176th Mi. Cor. bears S. 68.2 lks. dist.; on this determination the true line bears S. 89° 31' W.

THE DARLING LINE, 176TH MILE

REESTABLISHMENT

Thence from the 175th Mi. Cor. S. 89° 31' W., on a reestablishment of the 176th mile.

Descend 50 ft. over NW. slope, through timber; drift fence S., 39 lks. dist., follows near line.

6.00 Head of draw, course N. 75° E.; ascend 75 ft. over E. slope.

6.30 Crest of spur, slopes N. 55° E.; descend 20 ft. over NW. slope.

2.70 Head of draw, course NE.; ascend 142 ft. over SE. slope.

7.00 Drift fence crosses to N. of line; leave timber.

9.28 United States Geological Survey Bench Mark, bears South, 36.40 chs. dist.; a brass tablet marked and witnessed as described in the official record, elevation 9232.276 ft.; point on line is approximately 25 ft. below tablet.

.98 The closing cor. of secs. 20 and 21, T. 32 N., R. 7 E., New Mexico Prin. Mer., New Mexico; an iron post, 2 ins. diam., 9 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record; elevation 9234 ft.

.10 Small spur, slopes N. 30° E.

.00 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 175 + 46 Chs., 1868-1925, and build a mound of stone around the monument; crest of spur ridge, bears N. 30° E. and S. 30° W.; descend 14 ft. over gentle NW. slope.

55 Road from Conejos, Colorado, to Sublette, New Mexico, bears N. 55° E. and S. 35° W.

18 The Carpenter 156th Mi. Cor. bears North, 36.07 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

20 Enter timber, bears N. and S.; thence along swale at head of canon.

00 Foot of descent; ascend 70 ft. over gentle NE. slope.

72 Darling's 176th Mi. Cor.; a sandstone, 18x16x6 ins., lying on ground, mkd. C., NM., 176 M, and 68 on opposite faces;

Chains THE DARLING LINE, 176TH MILE

from which

An Engelmann spruce, 29 ins. diam., bears N. 75° E., 31 lks. dist., with blaze overgrown.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 176, 1868-1925, and build a mound of stone around the monument;

from which

A white spruce, 17 ins. diam., bears N. 1° E., 36 lks. dist., mkd. COLO 176 M BT.

A white spruce, 10 ins. diam., bears S. 27¼° W., 24 lks. dist., mkd. NM 176 M BT.

Land, rolling mountainous.

Soil, gravelly and stony loam and clay; 2nd and 3rd rate.

Timber, pine, spruce, and aspen; undergrowth, sage brush.

C O L O R A D O

CONEJOS COUNTY

RIO GRANDE NATIONAL FOREST

To Conejos

T.32 N.,R.7 E.

T.32 N.,R.8 E.

DENVER & RIO GRANDE WESTERN RR

Big Horn

20 21 22 23 24 19

176 S 89° 31' W 79.72 WC 175+0.44E. S 89° 18' W 60.44 174 S 89° 34' W 80.29 173 S 89° 34' W 80.29 172 N 89° 56' W 80.29 171 S 89° 50' W 80.27

+46.00 +33.70 +45.56

BM 9232.276 USC & GS

△ BIG HORN
LATITUDE 36°59' 11.77" N
LONGITUDE 106°10' 44.85" W

CARSON NATIONAL FOREST

T.32 N.,R.7 E.

T.32 N.,R.8 E.

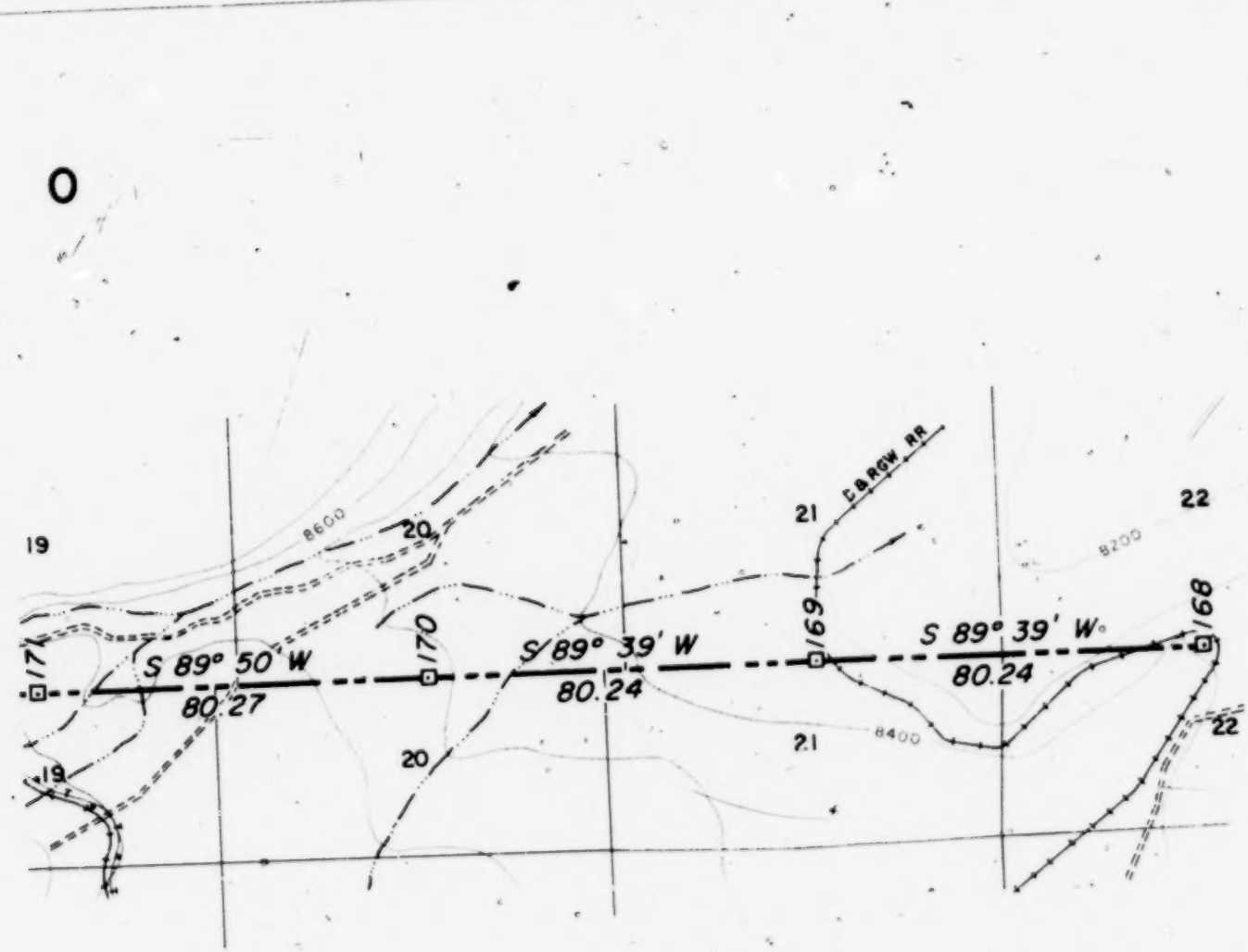
RIO ARRIBA COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 176

to

MILE CORNER No. 184

THE DARLING LINE, 177TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.06 N. 0.8 lks. to the parallel; thence the 177th Mi. Cor. bears S. 24.6 lks. dist.; on this determination the true line bears S. 89° 49′ W.

REESTABLISHMENT

Thence from the 176th Mi. Cor. S. 89° 49′ W., on a reestablishment of the 177th mile.

Ascend 390 ft. over E. slope, through timber and undergrowth; drift fence N., 28 lks. dist., follows near line.

17.00 Drift fence crosses to S. of line.

39.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 176 + 39 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 46 ins. diam., bears S. 8¾° W., 221 lks. dist., mkd. WP NM BT.

Monument stands by road from Sublette, New Mexico, to Osier, Colorado.

42.32 The closing cor. of secs. 19 and 20, T. 32 N., R. 7 E., New Mexico Prin. Mer., New Mexico; an iron post, 2 ins. diam., 12 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.

49.52 The Carpenter 155th Mi. Cor. bears North, 36.67 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

80.06 Darling's 177th Mi. Cor.; a sandstone, 20x12x8 ins., lying on mound of earth, no marks; a sandstone, 9x6x3 ins., mkd. 177, 6 ins. below the surface; pits E. and W. of stone 9½ lks. dist.;

from the stone

A fir stump, 22 ins. diam., bears S. 55° E., 47 lks. dist., with fragments of BT.

A fir stump, 26 ins. diam., bears N. 13° W., 28 lks. dist., with burnt out blaze.

Chains

THE DARLING LINE, 177TH MILE

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 177, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and original deposit by S. side of monument;

from which

A spruce, 14 ins. diam., bears S. 30½° W., 59 lks. dist., mkd. NM 177 M BT.

A spruce, 11 ins. diam., bears N. 32° W., 107 lks. dist., mkd. COLO 177 M BT.

Land, rolling mountainous.

Soil, sandy, gravelly, stony loam; 2nd rate.

Timber, pine, spruce, and aspen; undergrowth, sage brush.

THE DARLING LINE, 178TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 17, 1931.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.03 N. 0.8 lks. to the parallel; thence the 178th Mi. Cor. bears S. 16.4 lks. dist.; on this determination the true line bears S. 89° 53′ W.

REESTABLISHMENT

Thence from the 177th Mi. Cor. S. 89° 53′ W., on a reestablishment of the 178th mile.

Ascend 257 ft. over E. and along S. slopes, through timber and undergrowth.

9.00 Leave timber, bears NE. and SW.

26.00 Enter timber, bears N. 60° W. and S. 60° E.

40.53 The closing cor. of Tps. 32 N., Rs. 6 and 7 E., New Mexico Prin. Mer., New Mexico; an iron post, 3 ins. diam., 10 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.

Chains

THE DARLING LINE, 178TH MILE

49.23 The Carpenter 154th Mi. Cor. bears North, 37.01 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

Divide between the Conejos and Los Pinos Rivers, bears N. 60° W. and S. 60° E.; thence ascend along gentle S. slope.

80.03 Darling's 178th Mi. Cor.; a sandstone, 16x13x8 ins., lying on mound of earth and stone, no marks; a sandstone, 10x10x3 ins., mkd. 178 M, 6 ins. below the surface; pits E. and W. of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 178, 1868-1925, and build a mound of stone around the monument;

from which

An aspen, 10 ins. diam., bears S. 5° E., 36½ lks. dist., mkd. NM 178 M BT.

An aspen, 9 ins. diam., bears N. 23½° W., 128 lks. dist., mkd. COLO 178 M BT.

Land, rolling mountainous.

Soil, gravelly and stony loam and clay; 2nd rate.

Timber, pine, spruce, and aspen; undergrowth, young timber.

THE DARLING LINE, 179TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 23, 1931.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.14 N. 0.8 lks. to the parallel; thence the 179th Mi. Cor. bears N. 8.2 lks. dist.; on this determination the true line bears N. 89° 56' W.

REESTABLISHMENT

Thence from the 178th Mi. Cor. N. 89° 56' W., on a reestablishment of the 179th mile.

Ascend 138 ft. over S. slope, through timber and undergrowth.

28.25 Divide between Sublette and Toltec creeks, bears N. and S.

Chains

THE DARLING LINE, 179TH MILE

49.24 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 178 + 49.24 Chs., 1868-1925, and build a mound of stone around the monument;
from which
An aspen, 5 ins. diam., bears S. 8° W., 65 lks. dist., mkd. WP NM BT.
An aspen, 5 ins. diam., bears N. 77° W., 62 lks. dist., mkd. WP COLO BT.
Thence descend 409 ft. over SW. slope.

50.23 The Carpenter 153rd Mi. Cor. bears North, 37.18 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

51.04 Slope becomes steep.

80.14 Darling's 179th Mi. Cor.; a mound of stone, none marked;
from which
A spruce, 23 ins. diam., bears N. 3° E., 24 lks. dist., mkd. BT.
A pine stump, 12 ins. diam., bears S. 13° E., 34 lks. dist., mkd. BT.
In place of mound
Construct a concrete monument, in a form 8x11x18 ins., standing above ground, set in a concrete base, top level with ground surface, with tablet seated in the top marked Mile Corner No. 179, 1868-1925, and build a mound of stone around the monument;
from which
A pine, 24 ins. diam., bears S. 22° W., 33 lks. dist., mkd. NM 179 M BT.
A spruce, 16 ins. diam., bears N. 34° W., 86 lks. dist., mkd. COLO 179 M BT.
Land, rolling and broken mountainous.
Soil, sandy, gravelly and stony loam and clay; 3rd rate.
Timber, pine, spruce, and aspen; undergrowth, young timber.

THE DARLING LINE, 180TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

Chains THE DARLING LINE, 180TH MILE

79.22 N. 0.8 lks. to the parallel; thence the 180th Mi. Cor. bears S. 5.5 lks. dist.; on this determination the true line bears S. 89° 58' W.

REESTABLISHMENT

Thence from the 179th Mi. Cor. S. 89° 58' W., on a reestablishment of the 180th mile.

Descend 59 ft. over SW. slope, through timber and undergrowth.

8.00 Foot of descent, near head of draw; ascend 85 ft. over SE. slope.

13.45 Crest of spur, slopes S. 10° W.; descend 724 ft. over W. slope.

23.30 Construct a concrete monument, in a form 8x14x56 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 179 + 23.30 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A balsam, 7 ins. diam., bears S. 65½° E., 99 lks. dist., mkd. WP NM BT.

A pine, 10 ins. diam., bears N. 70° W., 188 lks. dist., mkd. WP COLO BT.

23.80 Denver and Rio Grande Western Railroad, bears S. 26° E. and N. 20½° W., curving to NE.

24.03 Railroad state line marker, bears North, 13 lks. dist.; a sandstone, 9x9x30 ins. above ground, firmly set, marked with a chiseled notch E. and W. on top.

34.98 The Carpenter 152.2 Mi. Cor. bears North, 37.24 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.

45.25 Trail, bears NW. and SE.

50.47 Toltec Creek, 5 lks. wide, 6 ins. deep, course S. 20° E.; ascend 842 ft. over E. slope.

71.24 Denver and Rio Grande Western Railroad, bears N. 24° 37' E. and S. 24° 37' W.

[illegible]9 Railroad state line marker, bears North, 11 lks. dist.; a sandstone, 10x10x30 ins. above ground, firmly set, marked with chiseled notch NE. and SW. on top.

77.10 Rim rock on W. rim of Toltec Canon, bears N. 25° E. and S. 10° W.

Chains

THE DARLING LINE, 180TH MILE

79.22 Darling's 180th Mi. Cor.; a basalt stone, 23x8x7 ins., lying on mound of earth, no marks; a basalt stone, 6x6x3 ins., mkd. 180, 6 ins. below the surface; pits E. and W. of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 180, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and deposit by S. of monument; from which

A balsam, 5 ins. diam., bears N. 81¼° E., 81 lks. dist., mkd. COLO 180 M BT.

A balsam, 9 ins. diam., bears S. 36¾° E., 169 lks. dist., mkd. NM 180 M BT.

Land, broken mountainous.

Soil, gravelly and stony loam and clay; 3rd rate.

Timber, pine, spruce, balsam, and aspen; undergrowth, young timber.

THE DARLING LINE, 181ST MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 The 181st Mi. Cor. was not established by Darling; point falls on steep W. slope in slide, continue distance.

129.39 N. 2.1 lks. to the parallel; thence the Darling Astronomical Monument No. 6 bears S. 56.6 lks. dist.; altitude observation on the sun for azimuth, July 29, 1931; on this determination the true line bears S. 89° 45′ W.

RETRACEMENT

Altitude observation on the sun for azimuth, July 29, 1931.

West, continuing on a retracement of the Darling boundary, on a transit line describing a tangent.

30.67 N. 0.1 lks. to the parallel; thence the 182nd Mi. Cor. bears S. 15.1 lks. dist.; on this determination the true line bears S. 89° 43′ W.

REESTABLISHMENT

Thence from the 180th Mi. Cor. S. 89° 45′ W., on a reestablishment of the 181st mile.

Chains THE DARLING LINE, 181ST MILE

Ascend 200 ft. over E. slope, through timber.

37.00 Crest of mountain spur ridge, bears N. and S.; descend 100 ft. over SW. slope.

53.16 The Carpenter 151st Mi. Cor. bears North, 37.79 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

54.60 Rim of canon, bears N. 75° W. and S. 40° E.; ascend 150 ft. along steep S. slope.

66.70 Rim of canon, bears N. 70° E. and S. 40° W.

71.20 Bare surface rock near rim of canon; set tablet in rock marked Mile Corner No. 180 + 71.20 Chs., 1868-1925;

from which

A Douglas fir, 17 ins. diam., bears S. 17½° W., 34 lks. dist., mkd. WP NM BT.

A spruce, 5 ins. diam., bears N. 36¼° W., 22 lks. dist., mkd. WP COLO BT.

71.90 Top of rim rock, 20 ft. high, bears NW. and SE.; descend 208 ft. over steep SW. slope.

80.20 Set a sandstone, 28x16x10 ins., in concrete base, 20 ins. in the ground, with tablet seated in top of stone marked WC Mile Corner No. 181 + 0.23 Chs. E., 1868-1925, and build a mound of stone around the monument;

from which

A Douglas fir, 7 ins. diam., bears S. 75° E., 12 lks. dist., mkd. WC NM 181 M BT.

South trunk of a double Douglas fir, 5 ins. diam., bears N. 29½° W., 16 lks. dist., mkd. WC COLO 181 M BT.

80.44 The proportional point; the 181st Mi. Cor. was not established by Darling; point falls on steep slide; impracticable to establish cor.

Land, broken mountainous.

Soil, gravelly and stony loam and clay; 3rd rate.

Timber, pine, spruce, fir, and aspen; undergrowth, young timber.

THE DARLING LINE, 182ND MILE

REESTABLISHMENT

Chains

S. 89° 45' W., on a reestablishment of the 182nd mile.

Descend 160 ft. over steep SW. slope; through scattering timber in slide.

3.40 Gulch, course S.; ascend 220 ft. over slide rock and cliff facing E.

5.50 Top of ascent; descend 600 ft. over steep SW. slope.

18.00 Leave timber, bears NW. and SE.

19.50 Railroad state line marker, bears South, 36 lks. dist.; a sandstone, 9x9x44 ins. above ground, firmly set.

19.56 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 181 + 19.56 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 9 ins. diam., bears N. 7° 37' E., 275 lks. dist.; mkd. WP COLO BT.

A spruce, 13 ins. diam., bears S. 68¼° E., 265 lks. dist., mkd. WP NM BT.

20.27 Denver and Rio Grande Western Railroad, bears N. 55¼° W. and S. 55¼° E., curving.

21.00 Telephone and telegraph line, bears N. 54° W. and S. 54° E.

26.12 The closing cor. of secs. 20 and 21, T. 32 N., R. 6 E., New Mexico Prin. Mer., Colorado, bears North, 45.5 lks. dist.; a sandstone, 24x16x8 ins. above ground, firmly set, marked with four notches on E., two notches on W.; and CC on N. face.

40.85 Left bank of the Los Pinos River, bears N. 55° W. and S. 55° E., general course S. 55° E.

43.65 Right bank of river; ascend 12 ft. over NE. slope.

46.36 The Carpenter 150.087 Mi. Cor. bears North, 38.16 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

48.96 Darling's Astronomical Monument No. 6; a broken sandstone; several pieces of stone were broken off (Carpenter 151st Mi.); the pieces were found and replaced and the total dimensions of stone found to be 10x12x42 ins., bottom piece firmly set in ground and

Chains THE DARLING LINE, 182ND MILE

mound of earth and stone: I took a picture of rebuilt stone before removing.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 181 + 48.96 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 11 ins. diam., bears S. 24° W., 231 lks. dist., mkd. WP NM BT.

A spruce, 6 ins. diam., bears N. 61¼° W., 192 lks. dist., mkd. WP COLO BT.

REESTABLISHMENT

Thence from Darling's Astronomical Monument No. 6, as reconstructed, S. 89° 43′ W., continuing on the reestablishment of the 182nd mile, with new measurement.

Ascend 462 ft. over steep NE. slope, through scattering timber.

5.57 Wire fence, bears NE. and SW.; enter dense timber.

18.90 Leave dense, enter scattering timber.

21.10 Crest of spur, slopes N. 10° W.; descend 85 ft. over NW. slope.

27.05 Draw, course N. 10° W.; ascend 15 ft. over NE. slope.

30.67 Darling's 182nd Mi. Cor.; a broken basalt stone, remaining dimensions 13x7x6 ins., lying on a mound of earth and stone, mkd. C., N., 182, and 68 on opposite faces; a basalt stone, 8x5x1 ins., mkd. 182 M, 12 ins. below the surface; pits E. and W. of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 182, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and original deposit by S. side of monument;

from which

East trunk of double spruce, 5 ins. diam., bears S. 1¼° W., 219 lks. dist., mkd. NM 182 M BT.

A spruce, 12 ins. diam., bears N. 75¾° W., 257 lks. dist., mkd. COLO 182 M BT.

Chains

THE DARLING LINE, 182ND MILE

Land, broken mountainous.
Soil, gravelly and stony loam and clay; 2nd and 3rd rate.
Timber, pine, spruce, fir, and aspen; undergrowth young timber and bunch grass.

THE DARLING LINE, 183RD MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 29, 1931.
West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.33 N. 0.8 lks. to the parallel; thence the 183rd Mi. Cor., lying on ground, bears S. 18½ lks. dist.

160.66 N. 3.0 lks. to the parallel; thence the 184th Mi. Cor. bears S. 37.0 lks. dist.; on this determination the true line bears S. 89° 52′ W.

REESTABLISHMENT

Thence from the 182nd Mi. Cor. S. 89° 52′ W., on a reestablishment of the 183rd mile.
Ascend 54 ft. over NE. slope, through timber.

8.35 Crest of spur, slopes N. 10° W.; descend 242 ft. over NW. slope.

16.32 Fence cor., fences N. and E.

17.88 Trail, bears N. 25° E. and S. 18° W.

23.24 The closing cor. of secs. 19 and 20, T. 32 N., R. 6 E., New Mexico Prin. Mer., Colorado, bears North, 31 lks. dist.; a basalt stone, 14x12x5 ins., above ground, firmly set, marked with five notches on E., one notch on W., and CC on N.; mound of stone N., 5 lks. dist.

26.30 Hillside draw, drains NW.

30.00 Leave timber, bears NE. and S.

32.10 Creek, 10 lks. wide, 6 ins. deep, course N. 35° E.; ascend 236 ft. over SE. slope.

44.20 Crest of spur, slopes S. 20° E.; descend 27 ft. over SW. slope.

53.25 Draw, course S. 55° E.; ascend 156 ft. over NE. and S. slopes.

Chains THE DARLING LINE, 1st 3D MILE

54.00 The Carpenter 149th Mi. Cor. bears North, 38.75 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

60.00 Enter timber, bears NE. and SW.

67.25 Spur ridge, bears NW. and SE.; thence along S. slope.

80.33 Darling's 183rd Mi. Cor.; a sandstone, 16x12x7 ins., lying on ground, mkd. C., NM., 183 M, and 68 on opposite faces.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 183, 1868-1925; reset original stone by W. side of monument; from which

A spruce, 17 ins. diam., bears N. 63° 39′ E., 409 lks. dist., mkd. COLO 183 M BT.

West trunk of double spruce, 17 ins. diam., bears S. 40° 52′ E., 489 lks. dist., mkd. NM 183 M BT.

Land, broken mountainous.

Soil, gravelly and stony loam and clay; 2nd and 3rd rate.

Timber, spruce and aspen.

THE DARLING LINE, 184TH MILE

REESTABLISHMENT

S. 89° 52′ W., on a reestablishment of the 184th mile.

Ascend 210 ft. over S. slope, through scattering timber.

19.15 Spur, slopes S. 60° E.

36.30 Enter dense timber, bears N. and S.

47.80 Leave dense, enter scattering timber.

54.08 The Carpenter 148th Mi. Cor. bears North, 39.16 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

59.75 Divide between two branches of the Los Pinos River, bears N. 30° E. and S. 30° W.; descend 207 ft. over W. slope.

80.33 Darling's 184th Mi. Cor.; a sandstone, 20x10x8 ins., firmly set in mound of earth and stone, mkd. C on N., NM on S., 68 on W.

chains THE DARLING LINE, 184TH MILE

and 184 M on E. face; a sandstone, 12x7x3 ins., mkd. 184 M, 12 ins. below the surface.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 184, 1868-1925, and build a mound of stone around the monument; reset original stone W., and original deposit S. of monument;

from which

A spruce, 8 ins. diam., bears N. 28½ E., 17 lks. dist., mkd. COLO 184 M BT.

An Engelmann spruce, 19 ins. diam., bears S. 40 E., 12 lks. dist., mkd. NM 184 M BT.

Land, broken, mountainous.

Soil, gravelly and stony loam and clay; 3rd rate.

Timber, spruce and aspen; undergrowth, young timber.

C O L O R A D O

CONEJOS COUNTY

RIO GRANDE NATIONAL FOREST

Section House

T. 32 N., R. 5 E.

T. 32 N., R. 6 E.

24 19 20 21 22 23

Los Pinos River

Denver & Rio Grande Western RR

WC 181 +023E.

+19.56

+71.20

+23.80

184 S 89° 52' W 80.33 183 S 89° 52' W 80.33 182 S 89° 43' W 30.67 S 89° 45' W 48.96 S 89° 45' W 80.44 180 S 89° 58' W 79.22 179 N 89° 5

ASTRONOMICAL MON. No. 6

CARSON NATIONAL FOREST

Toltec Gorge

Toltec Creek

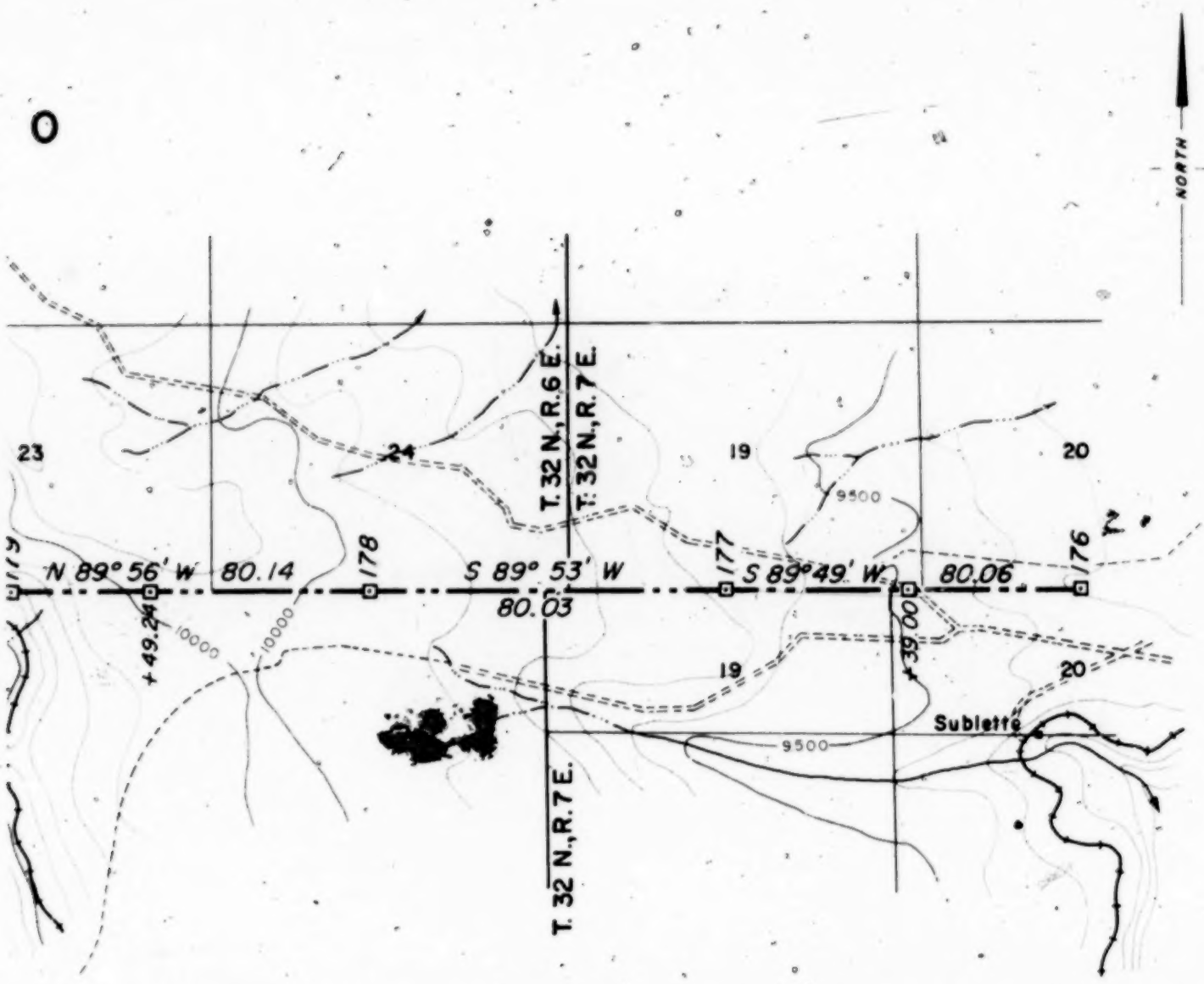
RIO ARRIBA COUNTY

N E W M E X I C

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY.

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D. Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thomas

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 184

to

MILE CORNER No. 194

THE DARLING LINE, 185TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit lin describing a tangent.

78.81 N. 0.8 lks. to the parallel; thence the 185th Mi. Cor. bears S. 24. lks. dist.; on this determination the true line bears S. 89° 49' W.

REESTABLISHMENT

Thence from the 184th Mi. Cor. S. 89° 49' W., on a reestablishmen of the 185th mile.

Descend 3 ft. over NW. slope, through timber.

0.38 Creek, 12 lks. wide, 6 ins. deep, course N. 10° E.; leave timber ascend 293 ft. over steep E. slope.

7.60 Rim rock, 10 ft. high, bears NE. and SW.

8.90 Crest of round knoll; descend 44 ft. along S. slope.

15.00 Foot of descent.

19.10 Enter timber, bears N. and S. 80° E.

20.00 Begin ascent of 325 ft. over SE. and E. slopes.

34.95 Leave timber, bears N. and S.; enter scattering aspen clumps.

44.90 Crest of spur, slopes NE.

53.73 Enter scattering timber; the Carpenter 147th Mi. Cor. bears North 39.33 chs. dist.; an iron post, firmly set in ground and mound o earth; I remove this monument.

55.00 Slope changes to E.

74.00 Top of ascent; descend 19 ft. over W. slope.

78.81 Darling's 185th Mi. Cor.; a sandstone, 10x7x7 ins., set in moun of stone, 2½ ft. high, mkd. C on N., NM on S., 68 on W., an 185 M on E. face; a sandstone, 11x5x2 ins., mkd. 185 M, 12 ins below the surface;

from which

A spruce, 18 ins. diam., bears N. 58° E., 9 lks. dist.

A fallen fir, 14 ins. diam., bears S. 58° W., 11 lks. dist.; both tree have old blaze with marks chopped out (Carpenter 151st Mi.)

Chains

THE DARLING LINE, 185TH MILE

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 185, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and original deposit by S. side of monument;

from which

A spruce, 17 ins. diam., bears N. 40° E., 14 lks. dist., mkd. COLO 185 M BT.

A spruce, 14 ins. diam., bears S. 48° E., 15½ lks. dist., mkd. NM 185 M BT.

Land, broken and rolling mountainous.

Soil, gravelly and stony loam and clay; 3rd rate.

Timber, spruce and aspen; undergrowth, young timber.

THE DARLING LINE, 186TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.33 N. 0.8 lks. to the parallel; thence the 186th Mi. Cor. bears N. 36.8 lks. dist.; altitude observation on the sun for azimuth, August 10, 1931; on this determination the true line bears N. 89° 44' W.

REESTABLISHMENT

Thence from the 185th Mi. Cor. N. 89° 44' W., on a reestablishment of the 186th mile.

Descend 3 ft. over W. slope, through timber.

3.00 Small stream, course N.; ascend 71 ft. over E. slope.

4.00 Timber becomes scattering.

8.40 Crest of mountain, bears N. and S.; descend 715 ft. along steep N. slope and over steep NW. slope.

19.10 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 185 + 19.10 Chs., 1868-1925, and build a mound of stone around the monument;

Chains THE DARLING LINE, 186TH MILE

from which
A spruce, 5 ins. diam., bears N. 47¼° E., 125 lks. dist., mkd. WP COLO BT.
A spruce, 7 ins. diam., bears S. 27° 50' W., 291 lks. dist., mkd. WP NM BT.
Osier water tower, bears N. 67° 29' E.
Thence descend steep NW. slope.

54.91 The Carpenter 146th Mi. Cor. bears North, 39.41 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

62.50 Leave timber, bears N. and S.

75.00 Apache Creek, 20 lks. wide, 6 ins. deep, course N. 20° E.; ascend 90 ft. over E. slope.

80.33 Darling's 186th Mi. Cor.: a broken basalt stone, remaining dimensions 13x12x4 ins., lying on mound of stone, mkd. C. and M. on opposite faces and 186 M on one face; a sandstone, 11x7x5 ins., mkd. 186 M, 12 ins. below the surface;
from which
A fallen dead spruce, 22 ins. diam., bears N. 37° E., 27 lks. dist.
A small peak, bears N. 50° W., about 20 chs. dist.
A small peak, bears N. 5° W., about 15 chs. dist.
High point, bears N. 30° E., about 1¾ mi. dist.
High point, bears N. 58° 55' E., about 2 mi. dist.
High point, bears S. 4° E., about 1 mi. dist.
Point of mountain ridge, bears S. 54° W., about 1 mi. dist.
In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 186, 1868-1925, and build a mound of stone around the monument; reset original stone by W. and original deposit by S. side of monument;
from which
A spruce, 11 ins. diam., bears S. 17° 25' E., 471 lks. dist., mkd. NM 186 M BT.
Land, mountainous.
Soil, sandy, gravelly, stony loam and clay; 3rd rate.
Timber, spruce and aspen.

The Darling Line, 187th Mile

Chains

RETRACEMENT

Altitude observation on the sun for azimuth, August 10, 1931. West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.02 N. 0.8 lks. to the parallel; thence the 187th Mi. Cor. bears S. 30.8 lks. dist.; altitude observation on the sun for azimuth, August 12, 1931; on this determination the true line bears S. 89° 47′ W.

REESTABLISHMENT

Thence from the 186th Mi. Cor. S. 89° 47′ W., on a reestablishment of the 187th mile.

Ascend 518 ft. over E. slope, through open park.

17.30 Enter timber, bears S. and NE.

20.06 The closing cor. of secs. 21 and 22, T. 32 N., R. 5 E., New Mexico Prin. Mer., Colorado bears South, 87 lks. dist.; a sandstone, 16x13x12 ins., loosely set, marked with three notches on E. and W. and CC on N face; witness mound of stone to N.

45.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 186 + 45 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 13 ins. diam., bears S. 41¼° W., 412 lks. dist., mkd. WP NM BT.

A spruce, 13 ins. diam., bears N. 77° W., 405 lks. dist., mkd. WP COLO BT.

Monument stands on divide between Apache and Arkansas Creeks, bearing N. 20° E. and S. 20° W.; thence continue ascent along N. slope.

54.58 The Carpenter 145th Mi. Cor. bears North, 39.47 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees; top of ascent; descend 395 ft. over NW. slope.

75.30 Leave timber, bears NE. and SW.

77.00 Arkansas Creek, 6 lks. wide, 3 ins. deep, course N. 35° E.; ascend 26 ft. over SE. slope.

Chains

THE DARLING LINE, 187TH MILE

80.02 Darling's 187th Mi. Cor.; a sandstone, 12x12x7 ins., lying on mou of earth, mkd. C., M., 68, and 187 M on opposite faces; a san stone, 7x5x4 ins., mkd. 187 M, 18 ins. below the surface; pits and W. of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 in in the ground, with tablet seated in the top marked Mile Corn No. 187, 1868-1925, and build a mound of stone around the mon ment;

from which

A spruce, 13 ins. diam., bears S. 79 50' W., 479 lks. dist., mk NM 187 M, BT.

A spruce, 16 ins. diam., bears N. 82¼ W., 430 lks. dist., mk COLO 187 M BT.

Land, broken mountainous.

Soil, sandy, gravelly, and stony loam and clay; 3rd rate.

Timber, spruce and aspen.

THE DARLING LINE, 188TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, August 12, 1931.

West, on a retracement of the Darling boundary, on a transit lin describing a tangent.

80.19 N. 0.8 lks. to the parallel; thence the 188th Mi. Cor. bears S. 53. lks. dist.; on this determination the true line bears S. 89 37' W.

REESTABLISHMENT

Thence from the 187th Mi. Cor. S. 89 37' W., on a reestablishmen of the 188th mile.

Ascend 424 ft. over SE. slope, through open park.

4.10 Enter timber, bears NE. and SW.

25.40 Divide between Arkansas and Dixie Creeks, bears N. 13 E. and SW

27.10 Construct a concrete monument, in a form 8x14x36 ins., set 20 ins in the ground, with tablet seated in the top marked Mile Corne No. 187 + 27.10 Chs., 1868-1925, and build a mound of ston around the monument;

Chains THE DARLING LINE, 188TH MILE

from which

A balsam, 8 ins. diam., bears N. 44¼ E., 79 lks. dist., mkd. WP COLO BT.

A balsam, 11 ins. diam., bears S. 73½ E., 86 lks. dist., mkd. WP NM BT.

Monument stands at top of ascent; descend 165 ft. over NW. slope.

41.65 Draw, drains N. 25 W.; ascend 56 ft. over NE. slope.

53.80 Top of ascent; thence along N. slope.

54.81 The Carpenter 144th Mi. Cor. bears North, 40.34 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

57.70 Descend 230 ft. over NW. slope.

71.70 Small stream, course N. 30 W.; ascend 15 ft. over NE. slope.

75.30 Top of ascent; descend 60 ft. over NW. slope.

80.19 Darling's 188th Mi. Cor.; a volcanic stone, 12x8x2 ins., mkd. 188 M, 12 ins. below the surface in a mound of earth; pits E. and W. of stone;

from which

A spruce, 27 ins. diam., bears N. 9½ W., 191 lks. dist.; I chopped overgrowth from scribe mark M and counted 63 annual rings.

A basalt stone, 16x12x12 ins., lying on ground, mkd. 188, C., and NM. on opposite faces was found approximately NW., 3 chs. dist.; this stone was set from the Darling bearing tree in 1897 by Edwin H. Kellogg, U. S. Deputy Surveyor, while closing the line between secs. 19 and 20, T. 32 N., R. 5 E., New Mexico Prin. Mer., Colorado, and removed by Carpenter (Carpenter 151st Mi.).

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 188, 1868-1925, and build a mound of stone around the monument; reset original deposit S. of monument;

from which

A balsam, 7 ins. diam., bears S. 64¼ E., 85 lks. dist., mkd. NM 188 M BT.

A spruce, 45 ins. diam., bears N. 73¼ W., 150 lks. dist., mkd. COLO 188 M BT.

Chains THE DARLING LINE, 188TH MILE

Land, mountainous.
Soil, sandy, gravelly, stony loam and clay; 3rd rate.
Timber, balsam, spruce, and aspen.

THE DARLING LINE, 189TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, August 13, 1931.
West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 The 189th Mi. Cor. was not established by Darling; point falls on steep rocky W. slope, continue distance.

160.00 N. 3.0 lks. to the parallel; the 190th Mi. Cor. has become obliterated.

240.39 N. 6.8 lks. to the parallel; thence the position for the 191st Mi. Cor. bears S. 20.2 lks. dist.; on this determination the true line bears S. 89° 57′ W.

REESTABLISHMENT

Thence from the 188th Mi. Cor. S. 89° 57′ W., on a reestablishment of the 189th mile.
Descend 61 ft. over NW. slope, through scattering timber.

7.55 Dixie Creek, 4 lks. wide, 3 ins. deep, course N. 49° E.; ascend 232 ft. over SE. slope.

19.62 The closing cor. of secs. 19 and 20, T. 32 N., R. 5 E., New Mexico Prin. Mer., Colorado, bears North, 3 lks. dist.; a sandstone, 16x8x8 ins., marked with five notches on E., one on W., and C on N. face; witness mound of stone to N.

28.60 Point of spur, slopes SE.; descend 67 ft. over SW. slope.

38.67 Small stream, course SE.; ascend 142 ft. over broken NE. slope.

54.31 The Carpenter 143rd Mi. Cor. bears North, 40.90 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

57.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner

Chains

THE DARLING LINE, 189TH MILE

No. 188 + 57 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 14 ins. diam., bears N. 43° E., 243 lks. dist., mkd. WP COLO BT.

A spruce, 34 ins. diam., bears S. 42° E., 209 lks. dist., mkd. WP NM BT.

Monument stands on the E. rim of Wolf Creek Canon, bearing N. 20° E. and SW.; descend 365 ft. over broken steep NW. slope.

73.00 Gulch, course NW.

80.13 The proportional point; the 189th Mi. Cor. was not established by Darling; point falls on steep slide; impracticable to establish cor.

Land, broken mountainous.

Soil, sandy, gravelly, and stony loam and clay; 3rd rate.

Timber, balsam, spruce, and aspen.

THE DARLING LINE, 190TH MILE

REESTABLISHMENT

S. 89° 57' W., on a reestablishment of the 190th mile.

Descend 960 ft. over broken NW. slope, through scattering timber and undergrowth.

4.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 189 + 4 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 6 ins. diam., bears S. 67° 50' W., 241 lks. dist., mkd. WP NM BT.

A spruce, 6 ins. diam., bears N. 57° W., 121 lks. dist., mkd. WP COLO BT.

10.50 Foot of steep descent; thence over rolling bench.

13.35 Small stream, 4 lks. wide, 2 ins. deep, course N.

51.50 Small stream, course N. 20° W.

54.65 The Carpenter witness corner to the 142nd Mi. Cor. bears North 49.56 chs. dist.; an iron post, firmly set in ground and mound of

Chains THE DARLING LINE, 190TH MILE

stone; I remove this monument and obliterate the marks on the two bearing trees and on the bearing object.

57.22 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 189 + 57.22 Chs., 1868-1925, and build a mound of stone around the monument;

from which

An aspen, 5 ins. diam., bears S. 76½ E., 149 lks. dist., mkd. WP NM BT.

An aspen, 6 ins. diam., bears N. 42¾ W., 50 lks. dist., mkd. WP COLO BT.

65.00 Top of bluff, leave bench; descend steep NW. slope.

67.00 Old fence line, bears N. 27½ W., and S. 27½ E.

80.13 The proportional point; unable to identify Darling's 190th Mi. Cor.; point falls in small side hill stream, course NW.; impracticable to reestablish this cor.

Land, rolling and broken mountainous.

Soil, gravelly and stony clay loam; 3rd rate.

Timber, balsam, spruce, and aspen; undergrowth, young timber and alders.

THE DARLING LINE, 191ST MILE

REESTABLISHMENT

S. 89° 57' W., on a reestablishment of the 191st mile.

Descend 173 ft. over NW. slope, through timber and undergrowth.

3.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 190 + 3 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A balsam, 14 ins. diam., bears N. 80¾ E., 100 lks. dist., mkd. WP COLO BT.

A balsam, 7 ins. diam., bears S. 61¼ W., 33 lks. dist., mkd. WP NM BT.

12.40 Left bank of Wolf Creek, bed 60 lks. wide, stream 15 lks. wide, 6 ins. deep, immediate course S. 10° W., general course S. 55° W.

Chains THE DARLING LINE, 191ST MILE

ascend 240 ft. over rolling and broken SE. slope to point in 192nd mile

31.44 Trail, bears N. and S.

41.41 The Carpenter 141.155 Mi. Cor. bears North, 41.25 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

53.05 Spring branch, course S.

57.00 Leave timber, bears S. and N. 80 W.

59.50 Side hill wash, course S. 20 E.

70.50 Enter dense oak brush, bears N. and S.

76.52 Telephone and telegraph line, bears S. 34¼ W. and N. 34¼ E., turning N. 44¼ E.

78.71 Railroad state line marker, bears North, 17 lks. dist.; a wooden post, 5x5x42 ins. above ground, firmly set in ground and mound of stone.

79.37 Denver and Rio Grande Western Railroad, bears S. 32½ W. and curving to NE.

80.13 The point for Darling's 191st Mi. Cor.; determined by a boulder, noted by Darling, in the 192nd mile; the boulder bears W., 9.30 chs. dist.; point for cor. falls in railroad cut; impracticable to re-establish this cor.;

from the point

A volcanic ledge of rock, bears N. 28¾ E.
Point on volcanic rock, bears N. 36¼ E.
Volcanic rock on ridge, bears S. 61½ E.
Volcanic rock on ridge, bears S. 59¾ E.
Center point on volcanic rock, bears S. 68½ E.
Mountain ridge having the appearance of white sand, bears S. 11 E.

Land, rolling and broken mountainous.

Soil, gravelly and stony clay loam; 3rd rate.

Timber, balsam, spruce, and aspen; undergrowth, young timber, alders, willows, and oak brush.

THE DARLING LINE, 192ND MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 192nd Mi. Cor. has become obliterated.

160.00 N. 3.0 lks. to the parallel; the 193rd Mi. Cor. has become obliterated.

180.10 Altitude observation on the sun for time, August 27, 1931; hour angle observation of Polaris for azimuth, August 27, 1931.

240.78 N. 6.8 lks. to the parallel; thence the 194th Mi. Cor. bears N. 154.2 lks. dist.; on this determination the true line bears N. 89° 38′ W.

REESTABLISHMENT

Thence from the 191st Mi. Cor. N. 89° 38′ W., on a reestablishment of the 192nd mile.

Ascend over E. slope of railroad cut.

0.50 Construct a concrete monument, in a form 16x24x36 ins., set 28 ins. in the ground, with tablet seated in the top marked WC Mile Corner No. 191 + 0.50 Chs. W., 1868-1925, and build a mound of stone around the monument.

From the monument, ascend 620 ft. over steep broken SE. slope.

1.74 Colorado highway No. 17, bears N. 13° E. and New Mexico highway No. 2, bears S. 33¼° W.; enter undergrowth W. of highway.

9.30 A volcanic gravel boulder, in place, 16x10x6 ft. above ground; this boulder was noted by Darling and used by me to reestablish the point for the 191st Mi. Cor.; the point on the boulder due west of the 191st Mi. Cor., bears S., 6 lks. dist.

20.30 Enter scattering timber.

28.20 Cliff, 60 ft. high, curving from NE. to NW.; descend 615 ft. over SW. and NW. slopes.

54.01 The Carpenter 140th Mi. Cor. bears North, 41.31 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

69.80 Small creek, 5 lks. wide, course S.

72.50 Thence over NW. slope.

Chains

THE DARLING LINE, 192ND MILE

80.26 The proportional point; unable to identify Darling's 192nd Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 192, 1868-1925, and build a mound of stone around the monument:

from which

A balsam, 8 ins. diam., bears N. 19° E., 37 lks. dist., mkd. COLO 192 M BT.

A balsam, 11 ins. diam., bears S. 54½° E., 42 lks. dist., mkd. NM 192 M BT.

Land, broken mountainous.

Soil, gravelly and stony loam and clay; 3rd rate.

Timber, balsam, spruce, pine, and aspen; undergrowth, young timber, oak brush, and buck brush.

THE DARLING LINE, 193RD MILE

REESTABLISHMENT

N. 89° 38' W., on a reestablishment of the 193rd mile.

Descend 577 ft. over broken NW. and SW. slopes, through timber and undergrowth.

17.07 The Carpenter 139.496 Mi. Cor. bears North, 41.36 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

19.70 Wagon road, bears NW. and SE.

23.00 Leave timber, bears N. 20° E. and S. 60° W.

51.00 Draw, drains S. 75° W.; thence along gentle SW. slope.

78.60 Left cut bank of creek.

78.75 Creek, 10 lks. wide, course S. 40° W.

79.55 Right cut bank of creek.

80.26 The proportional point; unable to identify Darling's 193rd Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 193, 1868-1925, and build a mound of stone to top:

from which

High peak, bears N. 58½° W.—

Chains

THE DARLING LINE, 193RD MILE

Timbered peak, bears North.
Mountain slide, bears N. 21° E.
Volcanic ledge, bears N. 32° E.
Point of mountain ridge, bears N. 52° E.
Mountain peak, bears N. 75° E.
Mountain ridge, bears S. 30° E.
Mountain peak E. of valley, bears S. 1½° W.
Valley, bears S. 10° W.
Point of ridge, bears S. 18° W.
Land, rolling mountainous.
Soil, gravelly and slightly stony loam; 2nd rate.
Timber, balsam, spruce, and aspen; undergrowth, young timber.

THE DARLING LINE, 194TH MILE

REESTABLISHMENT

N. 89° 38′ W., on a reestablishment of the 194th mile.
Descend 50 ft. over gentle SW. slope, through open valley.

15.50 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 193 + 15.50 Chs., 1868-1925, and build a mound of stone around the monument;
from which
A spruce, 33 ins. diam., bears N. 33½° E., 385 lks. dist., mkd. WP COLO BT.
A spruce, 24 ins. diam., bears S. 82° E., 50 lks. dist., mkd. WP NM BT.
Enter scattering timber at monument.

16.25 Road, bears N. 27½° W. and S. 23¾° E.

16.80 Dry bed or abandoned channel, course S. 20° W.

21.30 Left bank of the Chama River, bears N. and S.; 1.00 ch. S. turns SW.

24.85 Center of stream, in river bed, 30 lks. wide, 12 ins. deep, course S. 20° W. 50 lks. N. from N. 20° W.

25.15 Right bank of river, bears S. 20° W. and N. 20° E., 50 lks. N. turning to N. 20° W.; bank about 6 ft. high; ascend 170 ft. over steep NE. slope; enter dense timber.

Chains THE DARLING LINE, 194TH MILE

31.30 Crest of spur, slopes S. 60° E.; descend 50 ft. over SW. slope.

48.60 Wagon road at E. edge of small valley, bears NW. and SE.

50.30 Creek, 3 lks. wide, 2 ins. deep, course SE.; ascend 337 ft. over broken NE. slope.

53.03 The Carpenter 138th Mi. Cor. bears North, 41.38 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

77.90 Same creek, 5 lks. wide, 6 ins. deep, course N. 55° E.

80.26 Darling's 194th Mi. Cor.; a rotted fir stump, 14 ins. diam.; from which

A fir stump, 20 ins. diam., rotted to ground, bears S. 36½° E., 30 lks. dist.

A rotted fir stump, 24 ins. diam., bears N. 22° W., 46 lks. dist.

In place of stump

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 194, 1868-1925, and build a mound of stone around the monument;

from which

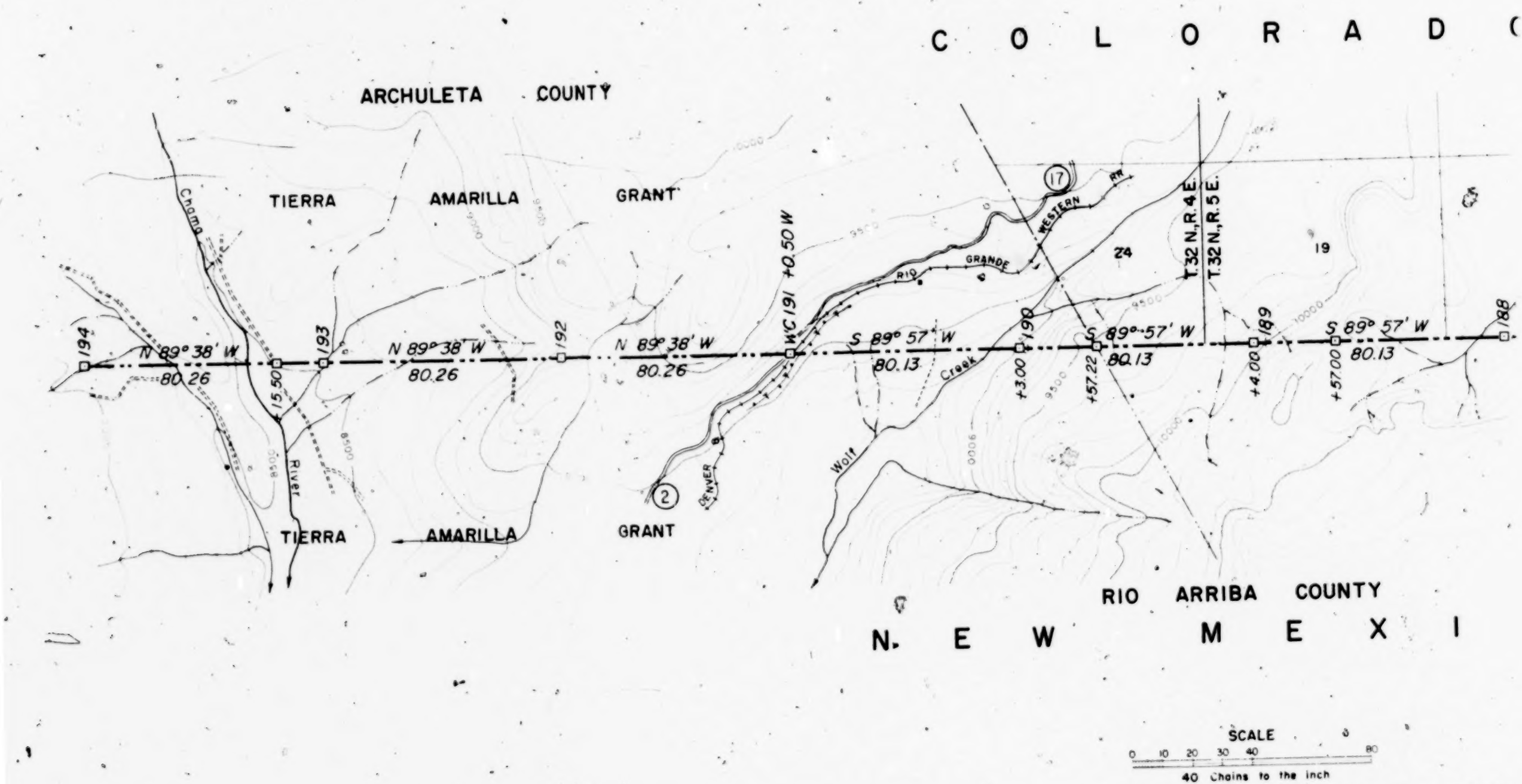
A balsam, 9 ins. diam., bears N. 75½° E., 24 lks. dist., mkd. COLO 194 M BT.

A spruce, 6 ins. diam., bears S. 49¾° E., 104 lks. dist., mkd. NM 194 M BT.

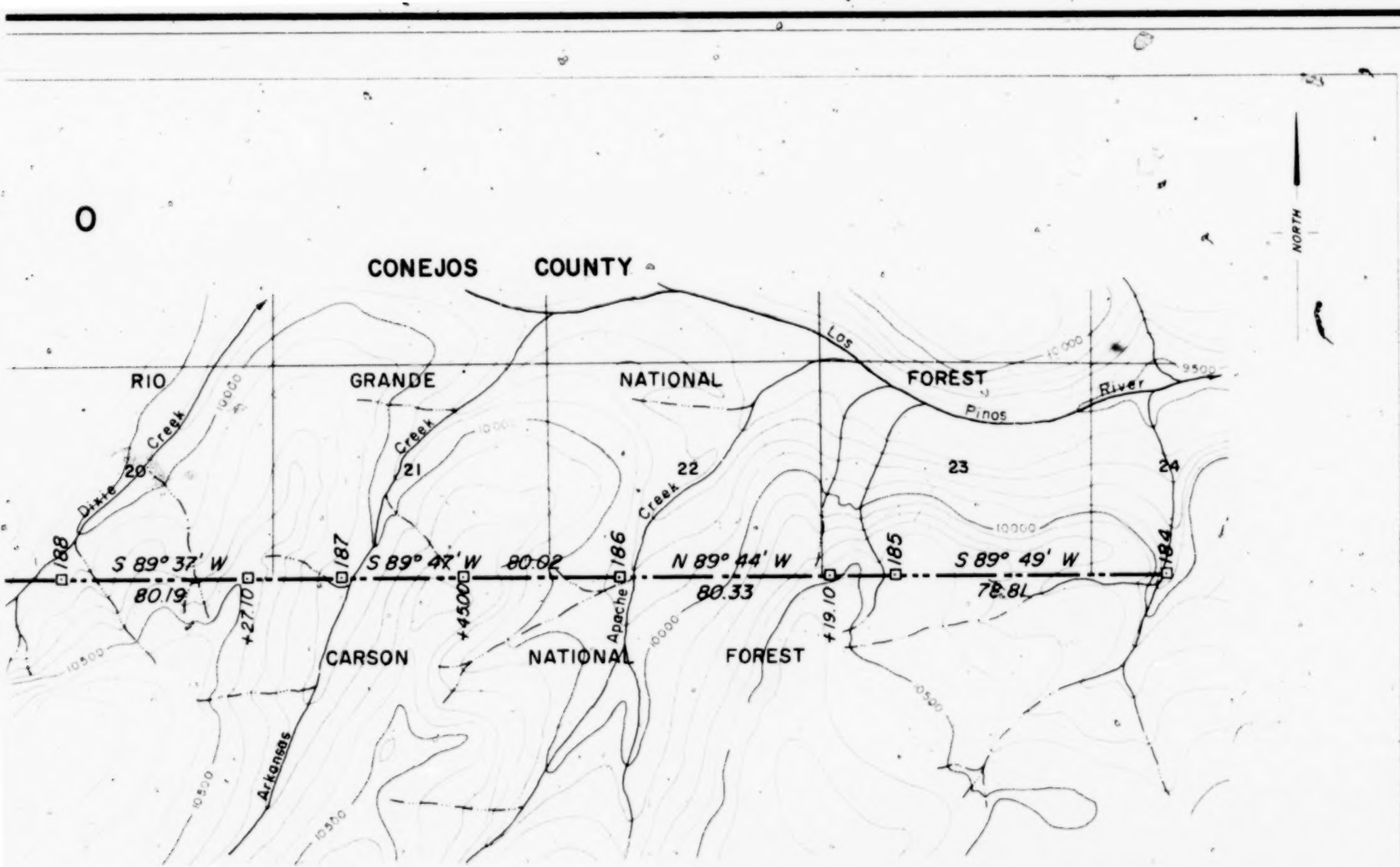
Land, rolling and broken mountainous.

Soil, sandy, gravelly, and stony loam and clay; 2nd and 3rd rate.

Timber, balsam, spruce, and aspen; undergrowth, young timber.



C O L O R A D
ARCHULETA COUNTY
TIERRA AMARILLA GRANT
Chama
River
194
N 89° 38' W
80.26
15.50
193
N 89° 38' W
80.26
192
N 89° 38' W
80.26
WC 191 +0.50 W
S 89° 57' W
80.13
Creek
Wolf
+3.00
190
+57.22
S 89° 57' W
80.13
+4.00
189
+57.00
S 89° 57' W
80.13
188
RIO GRANDE
WESTERN RR
17
24
19
T.32 N., R.4 E.
T.32 N., R.5 E.
DENVER
2
TIERRA AMARILLA GRANT
RIO ARRIBA COUNTY
N. E W M E X I
SCALE
0 10 20 30 40 80
40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 194

to

MILE CORNER No. 203

THE DARLING LINE, 195TH MILE

Chains *RETRACEMENT*

West, on a retracement of the Darling boundary, on a transit li describing a tangent.

80.00 N. 0.8 lks. to the parallel; the 195th Mi. Cor. has become obliterate Altitude observation on the sun for azimuth, August 26, 1931.

160.34 N. 3.0 lks. to the parallel; thence the 196th Mi. Cor. bears N. 120 lks. dist.; on this determination the true line bears N. 89° 34' W.

REESTABLISHMENT

Thence from the 194th Mi. Cor. N. 89° 34' W., on a reestablishmer of the 195th mile.

Ascend 676 ft. over broken E. slope, through timber and unde growth.

33.85 Wagon trail, bears N. and S.

34.30 Creek, 3 lks. wide, course S. 30° E. from N. 80° W.

53.39 The Carpenter 137th Mi. Cor. bears North, 41.12 chs. dist.; an iro post, firmly set in ground and mound of stone; I remove th monument and obliterate the marks on the four bearing trees.

67.95 Same creek, 5 lks. wide, course NE.

72.30 Wagon trail, bears N. 60° E. and S. 60° W.

80.17 The proportional point; unable to identify Darling's 195th Mi. Co 'onstruct a concrete monument, in a form 8x14x36 ins., set 24 in in the ground, with tablet seated in the top marked Mile Corn No. 195, 1868-1925, and build a mound of stone around the monu ment;

from which

A spruce, 8 ins. diam., bears S. 36¾° W., 115 lks. dist., mkd. N 195 M BT.

A spruce, 11 ins. diam., bears N. 2° W., 76 lks. dist., mkd. COL 195 M BT.

Land, broken mountainous.

Soil, gravelly and stony loam; 2nd rate.

Timber, spruce and aspen; undergrowth, young timber.

THE DARLING LINE, 196TH MILE

Chains *REESTABLISHMENT*

N. 89 34' W., on a reestablishment of the 196th mile.

Ascend 290 ft. over broken E. slope, through clumps of timber with open parks.

22.80 Small creek, course S. 60 E.

28.80 Enter willow brush in swamp, bears NE. and SW.

35.10 Leave swamp, bears N. 20 W. and S. 10 E.

53.27 The Carpenter 136th Mi. Cor. bears North, 41.03 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

54.90 Small creek, course S. 35 E.

77.50 Crest of mountain ridge, bears N. 40 W. and S. 40 E.; descend 14 ft. over gentle W. slope.

79.77 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked WC Mile Corner No. 196 + 0.40 Chs. E., 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 19 ins. diam., bears S. 49¾ W., 57 lks. dist., mkd. WC NM 196 M BT.

A spruce, 15 ins. diam., bears N. 60¾ W., 37 lks. dist., mkd. WC COLO 196 M BT.

80.17 Darling's 196th Mi. Cor.; a fir tree, 18 ins. diam., mkd. 196 on E. face, blazes on each face, but I did not chop out the N., S., and W. blaze;

from which

A fir, 15 ins. diam., bears N. 25 E., 23 lks. dist., mkd. with upper and lower blaze, scribe marks BT on lower blaze, upper blaze not chopped out.

A fir, 16 ins. diam., bears S. 25 W., 15 lks. dist., mkd. NM M T

Land, broken mountainous.

Soil, gravelly and stony loam; 2nd rate.

Timber, spruce, fir, and aspen; undergrowth, young timber and willow brush.

THE DARLING LINE, 197TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

80.00 The 197th Mi. Cor. was not established by Darling; point falls on steep W. slope, continue distance.

147.39 Altitude observation on the sun for azimuth, September 28, 1931.

160.22 N. 3.0 lks. to the parallel; thence the 198th Mi. Cor. bears S. 108.5 lks. dist.; on this determination the true line bears S. 89° 37' W.

REESTABLISHMENT

Thence from the 196th Mi. Cor. S. 89° 37' W., on a reestablishment of the 197th mile.

Descend 32 ft. over W. slope, through timber and undergrowth.

3.30 Foot of descent; ascend 60 ft. along S. slope.

17.80 Top of ascent; descend 656 ft. over S., W., NW., and SW. slopes.

29.04 The Carpenter 135.3 Mi. Cor. bears North, 41.25 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

48.30 Slope changes to W.

60.00 Leave large timber, enter young spruce and continue in aspen; slope changes to NW.

67.00 Slope changes to steep W.; reenter large timber.

71.70 Small hillside wash, drains SW.; slope changes to SW.

79.50 Slope changes to steep W.

80.11 The proportional point; the 197th Mi. Cor. was not established by Darling.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 197, 1868-1925, and build a mound of stone around the monument;

from which

A balsam, 12 ins. diam., bears N. 52° E., 13 lks. dist., mkd. COLO 197 M BT.

THE DARLING LINE, 197TH MILE

A pine, 8 ins. diam., bears S. 26½ E., 59 lks. dist., mkd. NM 197 M BT.

Land, rolling and broken mountainous.

Soil, gravelly and stony loam and clay; 2nd and 3rd rate.

Timber, spruce, fir, pine, and aspen; undergrowth, young timber.

THE DARLING LINE, 198TH MILE

REESTABLISHMENT

S. 89° 37' W., on a reestablishment of the 198th mile.

Descend 90 ft. over steep W. slope, through dense timber and undergrowth.

3.66 Old logging road in draw, course S. 10° W.; ascend 115 ft. over steep S. 80° E. slope.

7.85 Crest of spur, slopes S.; descend 550 ft. over W. and SW. slopes.

11.10 Top of sandstone bluff, at S. end; thence over steep W. slope.

22.80 Slope changes to SW.

37.00 Foot of steep slope, enter valley.

39.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 197 + 39 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A balsam, 24 ins. diam., bears N. 80½ E., 296 lks. dist., mkd. WP COLO BT.

A spruce, 10 ins. diam., bears S. 30° 25' E., 316 lks. dist., mkd. WP NM BT.

39.23 Wagon road, bears N. 35° E. and S. 27° W.

39.75 Old left bank of creek, willow brush along bank, bears N. and S.

40.90 Present channel of creek, 10 lks. wide, 3 ins. deep, course S. 10° W.

41.05 Right bank of creek, leave willow brush; ascend 176 ft. over S. 80° E. slope.

42.20 Leave valley.

43.00 Crest of low spur, slopes S. 20° E.; descend 10 ft. along S. slope.

Chains THE DARLING LINE, 198TH MILE

58.00 Foot of descent; ascend 267 ft. over E. and NE. slopes.

59.70 Leave timber, bears N. and S.; enter scattering oak brush.

65.00 Slope changes to NE.

66.90 The Carpenter 133.825 Mi. Cor. bears North, 42.66 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

67.30 Enter aspen, bears N. and S.

71.25 Crest of spur ridge, slopes N. to saddle and ascends S. to knoll; descend 171 ft. over W. slope.

74.00 Divide between creek and Chamita River, bears N. 30 W. and S. 10 E.

80.11 Darling's 198th Mi. Cor.; a stump hole;
from which
A spruce snag, 16 ins. diam., bears S. 40 E., 9 lks. dist.
A stump hole, bears N. 15 W., 6 lks. dist.
In stump hole
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 198, 1868-1925, and build a mound of stone around the monument;
from which
An aspen, 5 ins. diam., bears N. 22¼ E., 53½ lks. dist., mkd. COLO 198 M BT.
An aspen, 5 ins. diam., bears S. 11½ E., 21 lks. dist., mkd. NM 198 M BT.
Land, broken mountainous.
Soil, gravelly and stony clay and black loam; 2nd and 3rd rate.
Timber, spruce, balsam, pine, and aspen; undergrowth, young timber and oak brush.

THE DARLING LINE, 199TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

70.00 Altitude observation on the sun for azimuth, September 21, 1931.

Chains

THE DARLING LINE, 199TH MILE

79.39 N. 0.8 lks. to the parallel; thence the position for the 199th Mi. Cor. bears S. 49.4 lks. dist.; on this determination the true line bears S. 89° 39' W.

The Supreme Court record shows that two previous retracements have been made from the 196th to the 202nd mile corners, and that no evidence was found of the intervening Darling monuments; both retracements showed a large discrepancy in the latitude of the boundary. After running the preliminary trial lines, making adjustments for the differences in latitude, and completing the map, some evidence was found in each mile for an exact control otherwise in complete harmony with the Darling field notes, by which to restore the 199th, 200th and 201st mile corners. See the true line field notes for the identification of the wall of trap rock on the 199th mile; the dry drain just west of the 199th mile corner; the creek crossing just west of the 200th mile corner; the crossing of the Chamita River on the 201st mile; and the bearings to very prominent points at the 201st mile corner.

REESTABLISHMENT

Thence from the 198th Mi. Cor. S. 89° 39' W., on a reestablishment of the 199th mile.

Descend 160 ft. along S. side of a small draw, through aspen timber and undergrowth.

10.50 Dry creek bed, course S. 25° W.; ascend 140 ft. over SE. slope.

11.40 Leave aspen, bears N. and S.

16.40 Crest of spur, slopes S.; descend 108 ft. over W. slope.

19.60 Enter timber, bears N. and S.

21.90 Small canon, course S.; ascend 125 ft. over SE. slope.

26.20 Crest of spur, slopes S.; thence along broken S. slope; leave timber, bears N. and S.

32.80 South end of trap rock, on W. side of spur ascending N.; this rock has the appearance of a stone wall from the W. side, it is from 4 to 6 ft. wide and extends N., 2.51 chs. dist., and rock outcrop extends N., 5.00 chs. dist., it is 12 ft. high at the S. end, 3 ft. high at the N. end, 18 ft. high on the W., 8 ft. high on the E., the highest point, N., 63 lks. dist.; this stone wall is noted by Darling and

Chains THE DARLING LINE, 199TH MILE

employed by me to determine the position in latitude for Darling's 199th Mi. Cor.; descend 200 ft. over SW. slope.

34.50 Enter timber, bears N. and S.

42.95 Small canon, course S. 25° W.; ascend 40 ft. over SE. slope.

45.40 Spur, slopes S.; descend 50 ft. over SW. slope.

50.00 Draw, course S. 25° E.; ascend 115 ft. over NE. slope.

53.37 The Carpenter 133rd Mi. Cor. bears North, 44.14 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

55.80 Crest of spur, slopes S. 25° E.; descend 200 ft. over W. slope.

71.00 Head of canon, course S. 60° W.; ascend 45 ft. over SE. slope.

76.50 Crest of spur, slopes SW.; descend 75 ft. over NW. slope.

79.39 The point for Darling's 199th Mi. Cor.; determined by true line proportional distance for position in longitude and by the S. end of stone wall hereinbefore mentioned at 32.80 chs. dist.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground and in a concrete base, with tablet seated in the top marked Mile Corner No. 199, 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 8 ins. diam., bears N. 75¾° E., 23 lks. dist., mkd. COLO 199 M BT.

A Douglas fir, 16 ins. diam., bears S. 3° W., 26 lks. dist., mkd. NM 199 M BT.

Land, broken mountainous.

Soil, gravelly and stony loam; 2nd and 3rd rate.

Timber, fir, spruce, and aspen; undergrowth, young timber and oak brush.

THE DARLING LINE, 200TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

79.22 N. 0.8 lks. to the parallel; thence the position for the 200th Mi. Cor.

Chains

THE DARLING LINE, 200TH MILE

bears S. 523.9 lks. dist.; on this determination the true line bears S. 86° 13' W.

RE-ESTABLISHMENT

Thence from the 199th Mi. Cor. S. 86° 13' W., on a reestablishment of the 200th mile.

Descend 33 ft. over steep W. slope, through timber and undergrowth.

0.90 Center of draw in canon, course S. 35° W.; ascend 260 ft. over SE. slope.

15.40 Crest of spur, slopes S. 45° W.; descend 395 ft. over W. and along S. slopes.

35.50 Draw, course S. 30° W.; thence along S. slope; leave oak brush.

38.09 The Carpenter 132.2 Mi. Cor. bears North, 46.61 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

79.39 The point for Darling's 200th Mi. Cor.; determined by true line proportional distance for position in longitude and by deflecting the line South from the 199th Mi. Cor. for position in latitude until the distance to the creek west of the 200th Mi. Cor. agreed with the Darling record.

Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 200, 1868-1925, and build a mound of stone around the monument.

Land, rolling mountainous.

Soil, sandy and stony loam; 2nd rate.

Timber, scattering spruce and aspen; undergrowth, young timber and oak brush.

THE DARLING LINE, 201ST MILE

RETRACEMENT

Altitude observation on the sun for time, September 21, 1931; hour angle observation of Polaris for azimuth, September 21, 1931.

West, on a retracement of the Darling boundary, on a transit line describing a tangent.

Chains	THE DARLING LINE, 201ST MILE
79.37	N. 0.8 lks. to the parallel; thence the position for the 201st Mi. Cor. bears S. 175.5 lks. dist.
158.74	N. 3.0 lks. to the parallel; thence the 202nd Mi. Cor. bears S. 351.0 lks. dist.; on this determination the true line bears S. 88° 44' W.

REESTABLISHMENT

Thence from the 200th Mi. Cor. S. 88° 44' W., on a reestablishment of the 201st mile.

Descend 102 ft. over S. and SW. slopes, through open valley.

1.00	Road, bears N. 30° E. and S. 15° W.
2.72	Left bank of creek, bears N. 20° E. and S. 20° W. turning S. 35° W.; enter alders.
3.10	Point midway between banks in small channel; Darling's recorded distance.
3.42	Present channel of creek, 10 lks. wide, 6 ins. deep, general course S. 30° W.
3.52	Right bank of creek; leave alders.
20.00	Point of low spur, slopes S.; thence over SW. slope.
37.60	Left bank of the Chamita River, bears NW. and SE.
38.15	Center of the dry bed of the river, course SE. from N. 80° W.; general course S. 68° E.
38.70	Right bank of the river, bears SE. and turning to N. 80° W.; ascend 132 ft. over gentle NE. slope.
40.90	Old channel, course SE.
53.90	Wagon road, bears N. and S.
54.07	The Carpenter 131st Mi. Cor. bears North, 51.16 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.
58.90	Old trail, bears NW. and SE.
62.64	Colorado highway No. 17, to New Mexico highway; bears N. 47° W. and S. 47° E.
63.50	Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner

Chains

THE DARLING LINE, 201ST MILE

No. 200 + 63.50 chs., 1868-1925, and build a mound of stone around the monument.

79.39 The proportion point; unable to identify Darling's 201st Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 201, 1868-1925, and build a mound of stone around the monument;

from which

Conical peak, bears N. 40° 08′ E.

Left point of Navajo Peak, bears N. 24° W.

Northern point of mountain, bears S. 66° E.; this is the mountain mentioned at the 191st Mi. Cor. as having the appearance of white sand.

Land, gently rolling valley.

Soil, sandy and slightly stony loam and clay; 2nd rate.

Undergrowth, alders along creek.

THE DARLING LINE, 202ND MILE

REESTABLISHMENT

S. 88° 44′ W., on a reestablishment of the 202nd mile.

Ascend 50 ft. over NE. slope, through scattering oak brush.

7.60 Crest of spur, slopes NE.; descend 53 ft. over NW. slope.

14.40 Dry creek bed, course NE.; ascend 170 ft. over SE. slope.

15.30 Old road, bears NE. and SW.

17.70 Enter dense oak brush, bears NE. and SW.

26.00 Enter scattering timber, bears N. and SW.

32.00 Crest of spur, slopes NE.; descend 17 ft. over gently rolling NW. slope.

42.95 Dry creek bed, course NE.; ascend 353 ft. over SE. and E. slopes.

54.78 The point for the Carpenter 130th Mi. Cor. bears North, 53.34 chs. dist.; a mound of stone; post had been removed; I obliterate the marks on the four bearing trees; This corner is the SE. corner of the Crawley Ranch; I set the housing of the rear axle of a Model T Ford car, 24 ins. in the ground, to preserve the point, from which the Continental Divide bears West, 2.21 chs. dist.

Chains

THE DARLING LINE, 202ND MILE

79.39 Darling's 202nd Mi. Cor.: mkd. by an aspen post, 3 ins. square, 2 ins. above ground, loosely set, in an aspen stump hole, mkd. C o N., NM on S., 1901 on W., and 202 M on E. face (set by Blai Burwell in 1901);

from which

A rotted aspen stump, bears North, 17 lks. dist.

A dead aspen, 16 ins. diam., bears South, 27 lks. dist., with over growth not completely covering the old blaze; fragments o scribe marks visible between the overgrowth.

In the stump hole

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins in the ground, with tablet seated in the top marked Mile Corne No. 202, 1868-1925, and build a mound of stone around the monu ment; reset Burwell's post by W. side of monument;

from which

A spruce, 13 ins. diam., bears N. 2° E., 8 lks. dist., mkd. COL 202 M BT.

A spruce, 14 ins. diam., bears S. 2° W., 8 lks. dist., mkd. NM 202 M BT.

Land, rolling mountainous.

Soil, slightly stony loam; 2nd rate.

Timber, spruce and aspen; undergrowth, young timber and oak brush.

THE DARLING LINE, 203RD MILE

RETRACEMENT

West, on a retracement of the Darling boundary, on a transit lin describing a tangent.

68.67 Altitude observation on the sun for azimuth, September 16, 1931.

80.18 N. 0.8 lks. to the parallel; thence the 203rd Mi. Cor. bears S. 50 lks. dist.; on this determination the true line bears S. 89° 38' W.

REESTABLISHMENT

Thence from the 202nd Mi. Cor. S. 89° 38' W., on a reestablishmen of the 203rd mile.

Ascend 33 ft. over E. slope, through timber and undergrowth.

Chains THE DARLING LINE, 203RD MILE

5.10 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 202 + 5.10 chs., 1868-1925, and build a mound of stone around the monument:

from which

A balsam, 8 ins. diam., bears N. 16° E., 12½ lks. dist., mkd. WP COLO BT.

A spruce, 24 ins. diam., bears S. 53¼° W., 93 lks. dist., mkd. WP NM BT.

Monument stands on the crest of the Continental Divide, bearing N. 12¼° W. and S. 11½° W.

8.80 Draw, course N.; ascend 50 ft. over NE. slope.

14.00 Crest of spur, slopes N. 5° E.; thence descend and ascend along broken NW. and N. slopes; ascending 31 ft. to the cor.; this spur was mistaken for the Continental Divide by Darling.

24.00 Slope changes to N.

54.77 The Carpenter 129th Mi. Cor. bears North, 54.64 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees; this corner is a line corner on the S. bldg. of the Crawley Ranch; I set the housing of the rear axle of a Model T Ford car, 30 ins. in the ground, to preserve the point.

55.35 E. end of sink hole, bears S., 85 lks. dist.; 150 lks. long E. and W. x 30 lks. wide N. and S.

61.35 Leave timber, bears N. and S.; enter open park approximately 10 chs. N. and S.

65.70 Enter timber, bears N. and S.

67.85 Stream bed, course N. 35° W.

70.00 N. end of open park, bears S., approximately 15 chs., and averages about 5 chs. wide.

71.00 Leave N. end of open park.

80.18 Darling's 203rd Mi. Cor. as reestablished by Perkins in 1917; an iron post, 3 ins. diam., 12 ins. above ground, firmly set in ground, in a stump hole, with brass cap marked and witnessed as described in the official record.

Chains THE DARLING LINE, 203RD MILE

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 203, 1868-1925, and build a mound of stone around the monument;

from which

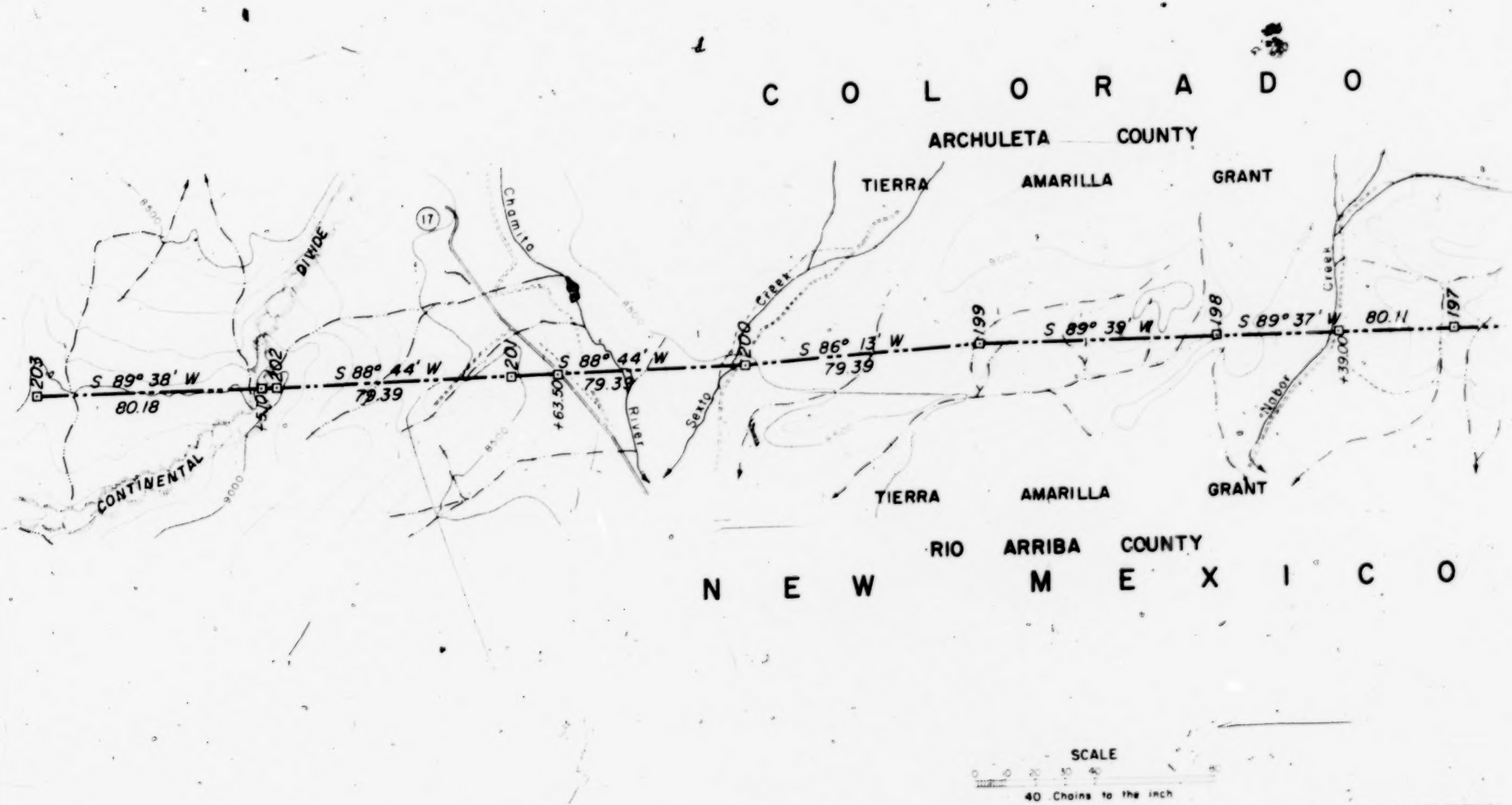
A spruce, 16 ins. diam., bears S. 37½ W., 80 lks. dist., mkd. NM 203 M BT.

A spruce, 12 ins. diam., bears N. 45½ W., 95 lks. dist., mkd. COLO 203 M BT.

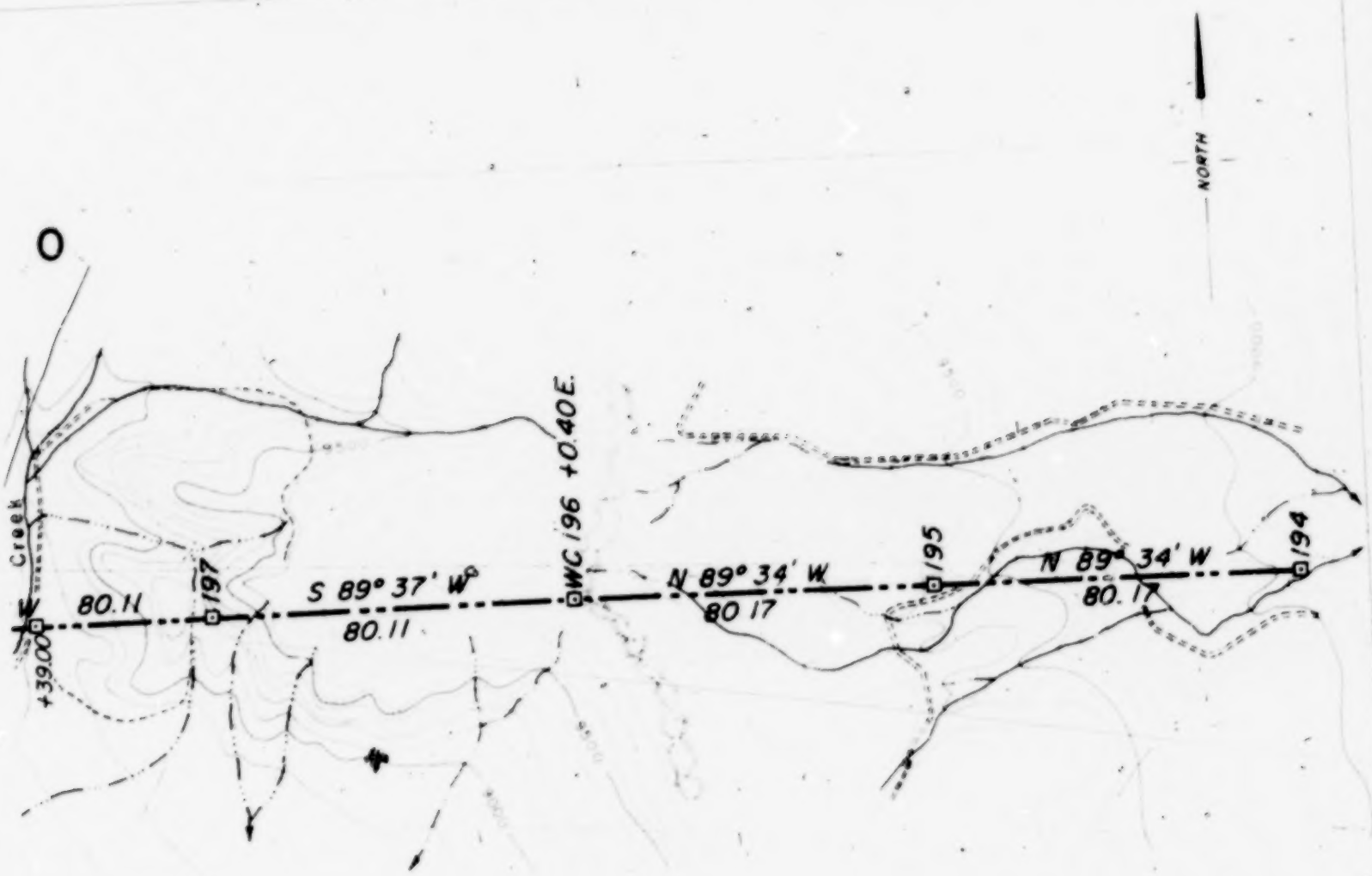
Land, rolling mountainous.

Soil, sandy and stony loam; 2nd rate.

Timber, spruce and aspen; undergrowth, young timber.



COLORADO
ARCHULETA COUNTY
TIERRA AMARILLA GRANT
TIERRA AMARILLA GRANT
RIO ARRIBA COUNTY
NEW MEXICO
CONTINENTAL DIVIDE
Chamita River
Sexto Creek
Nabor Creek
17
203
S 89° 38' W
80.18
202
+51.00
S 88° 44' W
79.39
201
+63.50
S 88° 44' W
79.39
200
S 86° 13' W
79.39
199
S 89° 39' W
198
S 89° 37' W
80.11
+39.00
197
SCALE
40 Chains to the inch



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COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma
Commissioner

1

SUPREME COURT OF THE UNITED STATES

No. 6 Original

THE STATE OF NEW MEXICO COMPLAINANT

THE STATE OF COLORADO DEFENDANT

REPORT OF THE BOUNDARY COMMISSIONER

PART THREE OF THREE

FROM CONTINENTAL DIVIDE

TO FOUR CORNERS

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1959

No. 1, Original

THE STATE OF NEW MEXICO, COMPLAINANT

vs.

THE STATE OF COLORADO, DEFENDANT

REPORT OF THE BOUNDARY COMMISSIONER

PART THREE OF THREE

FROM CONTINENTAL DIVIDE TO FOUR CORNERS

JOSEPH C. THOMA,
Boundary Commissioner.

WASHINGTON, D. C., June 1, 1960.

THE COURIER PRINTING CO., LITTLETON, N. H.

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SUPREME COURT OF THE UNITED STATES

October Term, 1959

No. 1, Original

THE STATE OF NEW MEXICO, Complainant,

vs.

THE STATE OF COLORADO, Defendant

THIRD REPORT OF THE BOUNDARY COMMISSIONER

To the Chief Justice and the Associated Justices of the Supreme Court of the United States:

In further continuation of our work as commissioners designated in the Decree of April 13, 1925 (268 U. S., 108) in the above entitled case, the late Arthur D. Kidder and I have run, located, and marked upon the ground the boundary line between the States of Colorado and New Mexico in accordance with Section Two of the Decree and the principles announced in the Opinion delivered January 26, 1925 (267 U. S. 30).

All field work was done under the supervision of Arthur D. Kidder, Boundary Commissioner. (Mr. Kidder died suddenly at his home in Terre Haute, Indiana, in June, 1958.)

On July 2, 1958, The Supreme Court of the United States appointed Joseph C. Thoma, of Washington, D. C., Boundary Commissioner, to complete the report and field notes of the boundary survey. Mr. Thoma was assisted in his duties by Gordon E. Ainsworth and Associates of South Deerfield, Massachusetts, and Phoenix, Arizona.

The report of the survey will be given in three parts, viz:

PART ONE:

From the Northeastern corner of New Mexico westward to the Crest of the Sangre de Cristo Range

PART TWO:

From the Crest of the Sangre de Cristo Range westward to the Continental Divide

PART THREE:

From the Continental Divide westward to the corners of the four States: Arizona, Colorado, New Mexico and Utah.

SPECIFIC REPORT OF THE BOUNDARY COMMISSIONER

PART THREE

From the Continental Divide Westward to the corners of the four States: Arizona, Colorado, New Mexico and Utah.

This report concludes the field note record and mapping of the boundary survey between the States of Colorado and New Mexico from the Continental Divide, terminal point for Part Two, westward to Four Corners.

This 128 miles of boundary, commencing at the Continental Divide was surveyed in 1932, with Hugh B. Crawford, as chief of party. Due to lack of funds, the field work was suspended, being resumed in August, 1947, with Mr. Joseph C. Thoma as chief of party; all field work being done under the direct supervision of Arthur D. Kidder, Boundary Commissioner.

The field work consisted of retracing and reestablishing the boundary between the States of Colorado and New Mexico in accordance with the United States Supreme Court Decree, 268 U. S. 108, April 13, 1925.

In full compliance with the above Decree, the surveying of the boundary took place, and the boundary was marked upon the ground with the establishment of monuments of the following descriptions; the monument for any specific point being described in detail in the field note records:

Monuments of concrete were molded in mass at the station, in galvanized metal forms, in the shape of truncated cones of the following sizes:

8" upper diam., 14" lower diam., 36" high
16" upper diam., 24" lower diam., 36" high
8" upper diam., 11" lower diam., 18" high

Heavy bronze tablets were set in the top of these concrete monuments. An illustration of the heavy bronze tablet used is shown on the opposite page; the tablet being marked with identifying Mile Corner or portion thereof, in the field, and properly oriented on the monument top.

The bronze tablet, had interchangeable stems, designed so that stem type could be readily changed, but once set, impossible to detach. Inserting the proper stem, the illustrated tablet was set in solid rock ledges and outcrops where other types of monuments could not be constructed.

In addition to the above monuments, a red brass tubing monument was used; the tubing being 3.5 ins. diam., 36 ins. long, with a 6 inch square red brass plate brazed to the bottom, and either a brass tablet or cap, brazed to the top. The cap carried the same inscriptions as the tablet and was marked in the field in a similar manner.

THE SUPREME COURT OF
COLORADO
MILE CORNER
No.
1868
1925
PENALTY FOR DISTURBING
CHS
THE NEW MEXICO
THE UNITED STATES

Below, to show the degree of control for the reestablishment of the Darling boundary, the 128 miles of boundary have been divided into four distinct groups of miles, and statements covering the degree of control for the survey are made for each group, as follows:

FROM THE CONTINENTAL DIVIDE, DARLING'S MILE NO. 202 + 5.19 CHS., TO DARLING'S ASTRONOMICAL MONUMENT NO. 8, MILE NO. 241 + 21.56 CHS.:

This section of the Darling boundary was retraced and restored by Wm. C. Perkins, U. S. Surveyor, under directions of the Commissioner of the U. S. General Land Office, in 1917, and decreed by the Supreme Court to be the boundary between New Mexico and Colorado.

The field note records of Arthur D. Kidder's retracement and reestablishment of the Perkins' Line, shows that all of the Perkins' monuments established were in existence and clearly marked at the time of his retracement. Mr. Kidder remonumented each of the Perkins' iron posts, enclosing them within a concrete monument from Perkins' 203rd to 236th Mile Corner inclusive; from this point to Darling's Astronomical No. 8, the Perkins' iron posts remain as the monuments of the boundary. In this entire interval three mile posts not established by either Perkins or Darling, were established by Kidder, at proper proportionate distance, using control points established by Perkins for alignment. In addition, 11 other concrete monuments were constructed on the boundary where they would be conspicuous for the aid of those who may have need for locating the line.

FROM DARLING'S ASTRONOMICAL NO. 8, MILE NO. 241 + 21.56 CHS., TO DARLING'S TERMINAL POINT, MILE NO. 289 + 35 CHS.:

This portion of the boundary was decreed by the Supreme Court to be as surveyed by Ehud N. Darling in 1868. The field note records for this 48 miles of boundary show that only 14 control points existed at the time the boundary was retraced by Kidder. Subdividing these 48 miles of boundary into those miles between Darling's Astronomical Monument No. 8, restored by Perkins in 1917, and his Astronomical Monument No. 9, 23 miles west of No. 8, only four Darling monuments remained:

No. 247: Restored in 1934, by Everett Kimmel, U. S. Surveyor on detail with the U. S. Coast and Geodetic Survey.

No. 261: Restored in 1925, by Albert Rich, U. S. Cadastral Engineer, under directions of the Commissioner of the U. S. General Land Office, in the course of his surveying of portions of T. 32 N., R. 9 W., New Mexico Principal Meridian, Colorado.

Nos. 252, 253: Both original Darling monuments identified in the course of this work.

The official records of the restoration of No. 247 and No. 261 were accepted and used by Arthur D. Kidder as being the best available evidence for the position of Darling's original points.

West, from Astronomical Monument No. 9, Mile No. 265 + 68.27 Chs. to Darling's Terminal Point, Mile No. 289 + 35 Chs., Kidder found seven of Darling's original monuments, located over the 24 mile distance, so that the average retracement length was two miles.

From Darling's 280th mile to his Terminal Point, the alignment in latitude was determined from the official records, using a closing corner established 1.50 chains East of the original Darling 280th Mile Corner; the line being projected due West to the Darling Terminal Point. Careful search at the time of the retracement revealed that no better control for latitude existed. The field note calls of the Darling survey were used to determine proportionate distances from 280 to 286, and regular 80.00 chains miles were established West of the reestablished 286. In this small portion, the field note calls of Darling's could be checked, but they were not in close enough agreement with the retracement calls to justify varying the length of the mile by proportionate distances.

FROM DARLING'S TERMINAL POINT, MILE NO. 289 + 35 CHS., TO DARLING'S ASTRONOMICAL NO. 10, MILE NO. 313 + 17.08 CHS.:

This 24 miles of the boundary was regarded by Darling in 1868, as "impossible to survey" because of the numerous high cliffs and deep rugged gorges. Darling did compute a line and distance connecting these two points, but until the time of this boundary survey, the boundary had never been marked upon the ground. Under the supervision of Mr. Kidder, a random line was run between Darling's Terminal Point and Astronomical Monument No. 10, to determine the true line bearing between these two points. With the true line bearing determined, this 24 miles of boundary was monumented with 40 monuments consisting mostly of brass tubing monuments with brass caps, and brass tablets set in solid rock.

FROM DARLING'S ASTRONOMICAL MONUMENT NO. 10, MILE NO. 313 + 17.08 CHS., TO THE CORNER OF THE FOUR STATES: ARIZONA, COLORADO, NEW MEXICO AND UTAH, HEREIN KNOWN AS THE "FOUR CORNERS" MONUMENT:

Darling did survey and monument this portion of the boundary, 17 miles in length. The following quote from the official records of a survey, by Howard B. Carpenter, U. S. Surveyor, in 1903, leaves little doubt as to the condition of these monuments at that time. "I searched the country thoroughly on both sides of my line from the four corners back to Mr. Darling's Astronomical Monument No. 10 near his 313th Mile Cor., and this is the only

object I succeeded in finding bearing any of the Darling marks." The object found was Darling's 325th Mile Corner, which Carpenter found lying on the ground and he believed, not at its original position. The retracement of this portion of the boundary, under Mr. Kidder, met with no better success in finding any of Darling's original monuments.

The country in this area is open; both men unhampered by timber and undergrowth did, with comparative ease, make careful search, not only the recorded position of these monuments, but also the surrounding areas.

As decreed by the United States Supreme Court, the recorded position for each of the Carpenter monuments was searched, and all evidence of a Carpenter monument, after being tied into the reestablished boundary, was obliterated. Only a few of the actual posts could not be found after careful search, and these few were located at points such that the elements probably had destroyed the monuments. In addition to the few iron posts not found, some posts were left in position to serve functions other than of marking the Carpenter boundary. All evidence on any of these posts as being a Carpenter boundary monument was carefully obliterated.

Before leaving the subject of control for the reestablishment of the decreed boundary, except for the section restored by Perkins and the portion where Darling's original monuments averaged two miles apart, little if any, of Darling's original points remained. The reestablished line for other parts was to some degree, based upon the official records of other official surveyors, who for other reasons than restoring the boundary, had to locate Darling's original points. Only after careful and weighted evaluation of the records of what these surveyors found as evidence of Darling's original monuments, in addition to what Mr. Kidder found at the same points, did Mr. Kidder conclude that these restored points were the best available evidence of the Darling original points.

This entire portion of the boundary is rough, mountainous land, covered with cedar and pinon timber, with some yellow pine in the higher altitudes; varying from scattering to dense stands, with the exceptions of the cultivated valley lands and the extreme western portion, which is gently rolling land almost void of any vegetation. The undergrowth consists mostly of scrub oak and sage brush, except in the cultivated valley lands, varying from scattering to dense growth. Notably in the eastern part of this portion of the boundary, the scrub oak grows densely, mile after mile, and is believed by many to be the cause for the discrepancies in alignment of Darling's survey.

Active gas and oil wells have been developed on both sides of the boundary in the Barker Canon area, and considerable prospecting for gas and oil is taking place in New Mexico east of the La Plata River.

The field work was completed on September 11, 1950; the delay in the preparation of the field notes and final report was due to lack of funds.

The foregoing and the following portions of this report are respectfully submitted to the Chief Justice and the Associate Justices of the Supreme Court of the United States for their approval.

Your humble and obedient servant.

JOSEPH C. THOMA
Boundary Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 202

to

MILE CORNER No. 211

COLORADO AND NEW MEXICO BOUNDARY

This portion of the boundary survey was executed with a Buff and Buff engineer's transit equipped with an improved Smith Solar attachment, the horizontal circle has two double opposite verniers reading to single minutes, the vertical circle has one double vernier reading to single minutes. The instrument was in good condition and was placed in satisfactory adjustment prior to the beginning of the survey, and was tested and found free from appreciable error. Frequent tests were made throughout the survey.

The tangent method of surveying a parallel of latitude was selected; the controlling meridian was established by observations on Polaris; the bearing of the tangent was deflected from the meridian by repetition of angles and carried forward by transit line, taking the mean of direct and reversed sights at each instrument station. Frequent observations on Polaris, and direct observations on the sun for azimuth were made throughout the survey to test the azimuth of the tangent.

Measurements were made with a narrow steel tape, 5 chains in length, graduated every link for the first 100 links, and thereafter at intervals of ten links. The tape was tested by comparison with a 1 chain standard steel tape and found correct. Measurements were made on the slope and the vertical angles determined by a clinometer in good adjustment; the field notes show the horizontal equivalents.

COLORADO AND NEW MEXICO BOUNDARY

The Darling Line 203rd Mile

Continuing in Volume Three the survey records of the Colorado and New Mexico Boundary, the pertinent information of the retracement and re-establishment of the Darling 203rd Mile, ending the Field Notes and Maps of the Volume Two Report is herewith repeated.

Chains *RETRACEMENT*

[redacted]t, on a retracement of the Darling boundary, on a transit line describing a tangent.

68.67 Altitude observation on the sun for azimuth, September 16, 1931.

80.18 N. 0.8 lks. to the parallel; thence the 203rd Mi. Cor. bears S. 50.9 lks. dist.; on this determination the true line bears S. 89° 38' W.

THE DARLING LINE, 203RD MILE

Chains *REESTABLISHMENT*

Thence from the 202nd Mi. Cor. S. 89° 38' W., on a reestablishment of the 203rd mile.

Ascend 33 ft. over E. slope, through timber and undergrowth.

5.10 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 202 + 5.10 chs., 1868-1925, and build a mound of stone around the monument;

from which

A balsam, 8 ins. diam., bears N. 16° E., 12½ lks. dist., mkd. WP COLO BT.

A spruce, 24 ins. diam., bears S. 5¾° W., 93 lks. dist., mkd. WP NM BT.

Monument stands on the crest of the Continental Divide, bearing N. 12¼° W. and S. 11½° W.

8.80 Draw, course N.; ascend 50 ft. over NE. slope.

14.00 Crest of spur, slopes N. 5° E.; thence descend and ascend along broken NW. and N. slopes; ascending 31 ft. to the cor.; this spur was mistaken for the Continental Divide by Darling.

24.00 Slope changes to N.

54.77 The Carpenter 129th Mi. Cor. bears North, 54.64 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees; this corner is a line corner on the S. bldg. of the Crawley Ranch; I set the housing of the rear axle of a Model T Ford car, 30 ins. in the ground, to preserve the point.

55.35 E. end of sink hole, bears S., 85 lks. dist.; 150 lks. long E. and W. x 30 lks. wide N. and S.

61.35 Leave timber, bears N. and S.; enter open park approximately 10 chs. N. and S.

65.70 Enter timber, bears N. and S.

67.85 Stream bed, course N. 35° W.

70.00 N. end of open park, bears S., approximately 15 chs., and averages about 5 chs. wide.

Chains THE DARLING LINE, 203RD MILE

71.00 Leave N. end of open park.

80.18 Darling's 203rd Mi. Cor. as reestablished by Perkins in 1917, an iron post, 3 ins. diam., 12 ins. above ground, firmly set in ground, in a stump hole, with brass cap, marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 203, 1868-1925, and build a mound of stone around the monument;

from which

A spruce, 16 ins. diam., bears S. 37½ W., 80 lks. dist., mkd. NM 203 M BT.

A spruce, 12 ins. diam., bears N. 45½ W., 95 lks. dist., mkd. COLO 203 M BT.

Land, rolling mountainous.

Soil, sandy and stony loam; 2nd rate.

Timber, spruce and aspen; undergrowth, young timber.

THE PERKINS LINE, 204TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line, describing a tangent.

38.55 Altitude observation on the sun for azimuth, July 26, 1932.

80.74 N. 0.8 lks. to the parallel; thence the 204th Mi. Cor. bears N. 10.8 lks. dist.; on this determination the true line bears N. 89° 55' W.

REESTABLISHMENT

Thence from the 203rd Mi. Cor. N. 89° 55' W., on a reestablishment of the 204th mile.

Ascend 23 ft. along broken N. slope, through timber and undergrowth.

1.05 East edge of sink hole.

1.30 Water in sink hole, 3 ft. deep.

2.15 Leave water.

Chains THE PERKINS LINE; 204TH MILE

2.40 Leave sink hole.

6.20 Top of ascent; descend 58 ft. along N. slope.

11.40 Thence along the S. side of an open park; extends N., approximately 14 chs. dist.

17.72 Corral fence, approximately 80 lks. square.

18.52 West edge of corral; leave open park; enter timber, bears N. 30° W. and S. 30° E.

22.75 The Carpenter 128.4 Mi. Cor. bears North, 55.08 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the brass cap from the post and obliterate the marks on the three bearing trees; the post was left to preserve the point as a line corner on the S. boundary of the Crawley Ranch.

Thence ascend 165 ft. along broken NE. slope.

50.60 Leave timber, bears NE. and SW.; enter oak brush.

61.60 Saddle, between NE. and SW. slopes, bears NW. and SE.

64.75 Crest of spur ridge, bears N. 65° W. and S. 65° E.; descend 67 ft. over SW. slope.

70.00 Foot of descent near head of draw; ascend 57 ft. over SE. slope.

80.35 Crest of ridge, bears N. and S.; descend 4 ft. over steep SW. slope.

80.74 Perkins' 204th Mi. Cor.: an iron post, 3 ins. diam., 18 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 204, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 15 ins. diam., bears S. 34½° E., 98 lks. dist., mkd. NM 204 M BT.

A balsam, 14 ins. diam., bears N. 65½° W., 134 lks. dist., mkd. COLO 204 M BT.

These trees are the Perkins trees marked additional to the first marks.

Land, rolling mountainous.

Chains

THE PERKINS LINE, 204TH MILE

Soil, gravelly and stony loam and clay; 3rd rate.
Timber, spruce, aspen, and pine; undergrowth, young timber and oak brush.

THE PERKINS LINE, 205TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

79.97 N. 0.8 lks. to the parallel; thence the 205th Mi. Cor. bears N. 7.1 lks. dist.; altitude observation on the sun for azimuth, July 29, 1932; on this determination the true line bears N. 89° 57' W.

REESTABLISHMENT

Thence from the 204th Mi. Cor. N. 89° 57' W., on a reestablishment of the 205th mile.

Descend 957 ft. over broken W. slope, through undergrowth.

16.80 Dry drain, course N. 80° W.; enter scattering timber.

20.90 Beginning of dense timber.

27.75 Dry drain, course S. 65° W.

34.95 Same drain, course N. 35° W.

38.40 Leave timber, bears NW. and SE.; continue in undergrowth.

53.81 The Carpenter 127th Mi. Cor. bears North, 55.39 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the brass cap from the post and obliterate the marks on the bearing tree; the post was left to preserve the point as a line corner on the S. boundary of the Crawley Ranch.

58.90 Leave oak brush; enter small grove of aspen, bears N. and S.; enter valley in large flat draw, course NW.

62.40 Leave aspen grove; enter meadow, bears N. and S.

72.25 Enter strip of willow brush, bears N. 65° E. and S. 65° W.

76.20 Spring branch, bed 6 lks. wide, with small flow of water, 3 ins. deep, course S. 65° W.

hains

THE PERKINS LINE, 205TH MILE

77.00 Leave strip of willow brush, bears N. 65 E. and S. 65 W.; enter meadow.

79.97 Perkins' 205th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 205, 1868-1925, and build a mound of stone around the monument;

from which

A red sandstone boulder, 6x10x3 ft. above ground, bears N. 66 11' E., 10.865 chs. dist., mkd. BO 205 M.

An oak, 8 ins. diam., bears N. 10 20' E., 258 lks. dist., mkd. as described in the official record; add COLO 205 M BT.

A leaning willow, 8 ins. diam., bears S. 49 E., 133 lks. dist., mkd. as described in the official record.

A dead willow, 6 ins. diam., bears S. 58½ W., 212 lks. dist., mkd. as described in the official record.

An oak, 6 ins. diam., bears N. 60 37' W., 439 lks. dist., mkd. as described in the official record.

Land, broken mountainous.

Soil, stony clay and gumbo; 3rd rate.

Timber, spruce, pine, and aspen; undergrowth, young timber, willows, and oak brush.

THE PERKINS LINE, 206TH MILE

RETRACEMENT

Altitude observation on the sun for azimuth, July 29, 1932.

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

79.68 N. 0.8 lks. to the parallel; thence the 206th Mi. Cor. bears S. 2.1 lks. dist.; on this determination the true line bears S. 89 59' W.

REESTABLISHMENT

Thence from the 205th Mi. Cor. S. 89 59' W., on a reestablishment of the 206th mile.

Chains THE PERKINS LINE, 206TH MILE

Descend 87 ft. over gently rolling S. slope, through meadow.

7.30 Leave meadow; enter oak brush, bears N. and S.

15.70 Bottom of small open draw, course S.

21.60 Crest of small spur, slopes S.

30.90 Crest of small spur, slopes S. 20° W.

33.57 Wire fence, bears N. and S.

35.90 Foot of descent; ascend 44 ft. along S. slope.

47.00 Top of ascent; descend 258 ft. over SW. slope.

51.56 The Carpenter 126.037 Mi. Cor. bears North, 56.45 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove the brass cap from the post and obliterate the marks on the four bearing trees; the post was left to preserve the point as a line corner on the S. boundary of the Crawley Ranch.

68.35 Small spur, slopes N.

70.20 Leave oak brush, bears NE. and SW.; enter nearly open meadow.

79.68 Darling's 206th Mi. Cor. as reestablished by Perkins in 1917; an iron post, 3 ins. diam., 12 ins. above ground, firmly set in ground, in a large pine stump hole, with brass cap marked as described in the official record.

Around the post

Construct a concrete monument, in a form 8x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 206, 1868-1925, and build a mound of stone around the monument;

from which

A pine, 18 ins. diam., bears N. 34° 05' E., 583 lks. dist., mkd. as described in the official record.

A pine, 24 ins. diam., bears S. 36° 40' E., 281 lks. dist., mkd. as described in the official record; add NM 206 M BT.

A pine, 24 ins. diam., bears S. 59° 20' W., 261 lks. dist., mkd. as described in the official record.

A pine, 22 ins. diam., bears N. 22° 05' W., 214 lks. dist., mkd. as described in the official record; add COLO 206 M BT.

A pine stump, 28 ins. diam., bears N. 14° 37' E., 250 lks. dist.

Land, rolling mountainous.

COLORADO AND NEW MEXICO BOUNDARY

Chains

The Perkins Line, 206th Mile

Soil, stony black gumbo. 2nd rate.
Timber, scattering pine; undergrowth, oak brush.

COLORADO AND NEW MEXICO BOUNDARY

The Perkins Line, 207th Mile

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

79.36 N. 0.8 lks. to the parallel; thence the 207th Mi. Cor. bears N. 8.2 lks. dist.; on this determination the true line bears N. 89° 56' W.

REESTABLISHMENT

Thence from the 206th Mi. Cor. N. 89° 56' W., on a reestablishment of the 207th mile.

Ascend 55 ft. over SE. and N. slopes, through open meadow.

1.30 Leave meadow; enter scattering timber and undergrowth, bears E. and S.

4.00 Slope changes to N.

4.50 Crest of spur ridge, bears NE. and SW.; descend 118 ft. over NW. slope.

5.45 Pine, 20 ins. diam., bears N., 5½ lks. dist., Darling's blazes chopped out.

10.70 Enter open meadow, bears N. 10° E. and S. 10° W.

12.50 Draw, drains S. turning SW.; ascend 27 ft. over SE. slope.

14.00 Enter oak brush, bears N. 20° E. and S. 20° W.

15.20 Top of ascent; descend 68 ft. over S. slope.

20.30 Leave oak brush; enter open meadow, bears N. 20° E. and S. 20° W.

22.50 Enter valley, bears N. 20° E. and S. 20° W.

28.25 Creek, 3 lks. wide, banks 2 ft. high, stream 3 ins. deep, course N. 80° W. from S. 65° E.

30.25 Enter oak brush, bears S. and NW.; foot of descent; ascend 102 ft. over broken N. slope.

Chains

THE PERKINS LINE, 207TH MILE

50.25 Crest of low ridge, bears N. 60° W. and S. 60° E.; descend 127 ft. over SW. slope.

54.36 The Carpenter 125th Mi. Cor. bears North, 56.40 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the brass cap from the post and obliterate the marks on the bearing tree; the post was left to preserve the point as a line corner on the S. boundary of the Crawley Ranch.

54.90 Wagon road, bears N. 50° W. and S. 50° E.

56.47 Wire fence, bears N. 53° W. and S. 53° E.; enter open meadow.

78.75 Creek, 5 lks. wide, banks 3 ft. high, stream 6 ins. deep, course NW.

79.07 Same creek, course S. 20° E.

79.36 Perkins' 207th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record, excepting the distance to the dead pine tree, which is N. 66° 19' E., 9.66 chs. dist.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 207, 1868-1925, and build a mound of stone around the monument;

from which

Darling's 207th Mi. Cor., bears N. 12° 30' E., 1.28 chs. dist.; a well sodded mound of earth between well sodded pits E. and W. of mound 10 lks. dist.;

from which

The east end of a timbered hill, bears S. 55° W.

The east end of an upper sandstone ledge, bears S. 25½° W.; a lower sandstone ledge, bears S. 25° W.

Land, rolling mountainous.

Soil, slightly stony black gumbo; 2nd rate.

Timber, scattering pine; undergrowth, oak brush.

THE PERKINS LINE, 208TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line, describing a tangent.

Chains

THE PERKINS LINE, 208TH MILE

79.26 N. 0.8 lks. to the parallel; thence the 208th Mi. Cor. bears N. 18.0 lks. dist.; on this determination the true line bears N. 89° 52' W.

REESTABLISHMENT

Thence from the 207th Mi. Cor. N. 89° 52' W. on a reestablishment of the 208th mile.

Descend 10 ft. over gentle W. slope, in open meadow.

0.25 Creek, 5 lks. wide, banks 3 ft. high, stream 6 ins. deep, course N. 60° W. turning to NW.

5.40 Small ditch, 5 lks. wide, course N.; ascend 157 ft. over NE. and N. slopes.

8.20 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 207 + 8.20 Chs., 1868-1925, and build a mound of stone around the monument.

Monument stands at W. edge of meadow, bearing NW. and SE.

8.90 Enter timber and undergrowth, bears NW. and SE.

10.00 Slope changes to N.

14.70 Crest of small ridge, bears N. 30° W. and SE.; leave timber.

16.80 Small open draw, course N. 20° W.

19.50 Spur, slopes N.; descend 23 ft. over NW. slope.

21.50 Draw, drains N. 40° E., ascend 48 ft. over NE. slope.

27.60 Crest of spur, slopes N. 25° W.; descend 152 ft. over W. slope.

33.40 Leave oak brush, bears N. 20° E. and S. 20° W.

36.15 Draw, banks 5 lks. wide, 1 ft. high, course N. 20° E.; enter meadow at foot of descent, bears N. 20° E. and S. 20° W.; thence over gentle N. slope.

43.45 Drain, on W. side of meadow, course NE.; ascend 186 ft. over slightly broken gentle NE. slope.

46.00 Enter oak brush, bears NE. and SW.

54.69 The Carpenter 124th Mi. Cor. bears North, 56.11 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove the brass cap from the post and obliterate the marks on the three bearing

Chains

THE PERKINS LINE, 208TH MILE

trees: the post was left to preserve the point as a line corner on the S. boundary of the Crawley Ranch.

61.70 Leave oak brush; enter open park, bears N., approximately 8 chs. dist. and S., approximately 3 chs. dist.

66.50 Thence along S. side of park, entering and leaving oak brush.

72.20 Leave park; enter oak brush, bears NE. and SW. turning to E.

74.50 Crest of spur, slopes NE.; descend 15 ft. over NW. slope.

76.00 Head of draw, drains NE.; ascend 58 ft. over NE. slope.

79.26 Perkins' 208th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set with brass cap marked as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 208, 1868-1925, and build a mound of stone around the monument,

from which

A pine, 35 ins. diam., bears N. 60° 19′ E., 5.55 chs. dist., no marks.

Cross on sandstone boulder, bears S. 63° 36′ W., 184 lks. dist., mkd. as recorded

Cross on sandstone boulder, bears N. 44° 30′ W., 106 lks. dist., mkd. as recorded

Land, rolling mountainous.

Soil, slightly stony clay and gumbo; 2nd and 3rd rate.

Timber, spruce, pine, and aspen; undergrowth, young timber and oak brush.

THE PERKINS LINE, 209TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

79.29 N. 0.8 lks. to the parallel; thence the 209th Mi. Cor. bears N. 4.9 lks. dist.; on this determination the true line bears N. 89° 58′ W.

THE PERKINS LINE, 209TH MILE

Chains

REESTABLISHMENT

Thence from the 208th Mi. Cor. N. 89° 58' W., on a reestablishment of the 209th mile.

Ascend 166 ft. over NE. and N. slopes, through oak brush.

2.50 Enter dense aspen, bears N. and S.; leave oak brush.

5.60 Slope changes to N.

12.00 Enter oak brush in aspen.

15.60 Crest of spur, slopes N.; descend 166 ft. over NW. slope, crossing head of a draw.

32.76 The closing cor. of the West boundary of the Tierra Amarilla Grant, as closed from the reestablished 4th Mi. Cor. in New Mexico by Guy P. Harrington, U. S. Cadastral Engineer, in 1919, bears South, 19½ lks. dist.; an iron post, 3 ins. diam., 8 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record, except the mark COLO does not appear on the post, and T. 32 N. R. 1 E. S 23 is marked on the N. instead, and the date marked is 1918.

33.495 The closing cor. of the West boundary of the Tierra Amarilla Grant, as closed from the reestablished 3rd Mi. Cor. in Colorado, by Charles W. Devendorf, U. S. Cadastral Engineer, in 1924, bears South, 15.5 lks. dist.; an iron post, 3 ins. diam., 6 ins. above ground, firmly set, with brass cap marked COLO on N., NM on E., TAG in NE., TAG in SE., T 32 N, R 1 E, S 23 in NW., S 15, R 1 E, T 32 N in SW. quarter, CC in center.

33.63 Intersect the line between the reestablished 3rd Mi. Cor. on the West boundary of the Tierra Amarilla Grant in Colorado and the reestablished 4th Mi. Cor. on the West boundary of the Tierra Amarilla Grant in New Mexico.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 208 + 33.63 Chs., 1868-1925, and build a mound of stone around the monument;

from which

The reestablished 3rd Mi. Cor. on the West boundary of the Tierra Amarilla Grant, bears N. 1° 14' E., 7.03 chs. dist.; an iron post,

Chains THE PERKINS LINE, 209TH MILE

3 ins. diam., 8 ins. above ground, with brass cap marked and witnessed as described in the official record.

The reestablished 4th Mi. Cor. on the West boundary of the Tierra Amarilla Grant, bears S. 1° 14′ W., 72.97 chs. dist.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

A sandstone, 10x10x5 ins. above ground, firmly set in mound of stone, bears S. 1° 01′ W., 17.58 chs. dist., marked TA on E. face with a cross (+) under the TA; stands on crest of a high spur of lone mountain, bearing N. 57° E. and S. 57° W.

The closing cor. of secs. 15 and 22, T. 32 N., R. 1 E., NM Prin. Mer., New Mexico, bears S. 1° 20′ W., 71.02 chs. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

36.00 Foot of descent, near head of draw; ascend 707 ft. over NE., S., and SE. slopes.

40.30 Leave aspen; continue through dense oak brush.

52.80 Crest of saddle ridge, bears N. 70° W. and SE.; slope changes to S.

55.61 The Carpenter 123rd Mi. Cor. bears North, 56.14 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove the brass cap from the post and obliterate the marks on the four bearing trees; the post was left to preserve the point as a line corner on the S. boundary of the Crawley Ranch.

62.00 Slope changes to SE.

72.80 Top of sandstone rim rock, 20 ft. high, bears NE. and SW.

73.90 Top of 2nd sandstone rim rock, bears N. 30° E. and S. 30° W.

74.03 The closing cor. of secs. 22 and 23, T. 32 N., R. 1 E., NM Prin. Mer., Colorado; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

77.20 Crest of mountain ridge, bears N. and S.; descend 12 ft. over W. slope.

78.80 Enter aspen, bears N. and S.

79.29 Perkins' 209th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked as described in the official record.

Chains

THE PERKINS LINE, 209TH MILE

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 209, 1868-1925, and build a mound of stone around the monument;

from which

An aspen, 5 ins. diam., bears S. 44° W., 27 lks. dist., mkd. as recorded.

An aspen, 6 ins. diam., bears N. 24½° W., 26 lks. dist., mkd. as recorded.

An aspen, 4 ins. diam., bears S. 9° W., 4 lks. dist., mkd. NM 209 M BT.

An aspen, 4 ins. diam., bears N. 46½° W., 4 lks. dist., mkd. COLO 209 M BT.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, aspen clumps; undergrowth, oak brush.

THE PERKINS LINE, 210TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

30.52 Altitude observation on the sun for azimuth, August 7, 1932.

79.40 The 210th Mi. Cor. was not established by Perkins; continue distance.

91.24 N. 1 lk. to the parallel; thence the witness corner for the 210th Mi. Cor. bears S. 2.3 lks. dist.; on this determination the true line bears S. 89° 59' W.; thence West, continuing with new measurement, on a retracement of the Perkins boundary, on a transit line describing a tangent.

50.00 Altitude observation on the sun for azimuth, August 16, 1932.

57.25 N. 0.6 lks. to the parallel; thence the 211th Mi. Cor. bears S. 1.3 lks. dist.; on this determination the true line bears S. 89° 59' W.

THE PERKINS LINE: 210TH MILE

Chains *REESTABLISHMENT*

Thence from the 209th Mi. Cor. S. 89° 59' W., on a reestablishment of the 210th mile.

Descend 344 ft. over NW. and S. slopes, through aspen.

2.72 The closing cor. of secs. 15 and 16, T. 32 N., R. 1 E., NM Prin. Mer., New Mexico, bears South, 1.7 lks. dist.: an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

10.60 Sandstone rim rock, 10 ft. high, bears NE. and SW.

12.30 Canon, course S. 65° W. from NE.; thence over S. slope, crossing point of spur; leave aspen; enter scattering pine and oak brush.

17.55 Canon, course S.; ascend 257 ft. over SE. slope.

21.00 Top of sandstone rim rock, 25 ft. high, bears S. 70° W. and N. 35° E.

28.00 Top of sandstone rim rock, 20 ft. high, bears N. 10° E. and S. 10° W.

34.70 Crest of spur ridge, near S. end, bears NE. and SW.; descend 435 ft. over SW. slope.

45.25 Top of sandstone rim rock, 20 ft. high, bears N. 35° W. and S. 35° E.

49.10 Canon, course S. 15° W.; ascend 377 ft. over SE. slope

54.40 Top of sandstone rim rock, 15 ft. high, bears N. 10° W. and S. 10° E.

55.30 Top of sandstone rim rock, 18 ft. high, bears N. 15° W. and S. 15° E.

56.26 The Carpenter 122nd Mi. Cor. bears North, 55.90 chs. dist.: an iron post, firmly set in ground and mound of earth; I remove this monument and obliterate the marks on the two bearing trees.

63.10 Crest of spur ridge, bears N. 20° E. and S. 20° W.; descend 306 ft. over SW. slope.

73.20 Enter dense young aspen, bears N. 20° W. and SE.

73.86 The closing cor. of secs. 21 and 22, T. 32 N., R. 1 E., NM Prin. Mer., Colorado, bears South, 3.5 lks. dist.; an iron post, 2 ins. diam., with brass cap marked and witnessed as described in the official record.

79.26 The proportional point: the 210th Mi. Cor. was not established by Perkins.

Chains

THE PERKINS LINE, 210TH MILE

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 210, 1868-1925, and build a mound of stone around the monument.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, aspen and scattering pine; undergrowth, young timber and oak brush.

THE PERKINS LINE, 211TH MILE

REESTABLISHMENT

S. 89° 59' W., on a reestablishment of the 211th mile.

Descend 11 ft. over SW. slope, through young aspen

1.40 Trail in canon, course S. 20° W.: ascend 280 ft. over SE. slope

4.18 The closing cor. of secs. 16 and 17, T. 32 N., R. 1 E., NM Prin. Mer., New Mexico, bears South, 1 lk. dist.: an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

4.75 Top of sandstone rim rock, 15 ft. high, bears N. 20° E. and S. 20° W.: leave aspen; enter oak brush.

6.20 Top of 2nd sandstone rim rock, bears N. 20° E. and S. 20° W.

11.98 Perkins' witness corner to the 210th Mi. Cor.: an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record: the two bearing trees have died and are down.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 210 + 11.98 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A pine, 6 ins. diam., bears S. 79° E., 26 lks. dist., mkd. WP NM BT.

Monument stands on a ridge, by a trail, bearing N. 40° E. and S. 30° W.

Chains THE PERKINS LINE, 211TH MILE

Thence descend 255 ft. over gently rolling land, beginning with gentle NW. slope, through scattering timber and dense undergrowth.

39.50 Slope changes to SW.

56.60 Trail in draw, course S. 60 W. from N. 50 E.; thence along a SE. slope.

61.83 The Carpenter 120.937 Mi. Cor. bears North, 55.68 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

62.50 Slope changes to SW.

73.56 The closing cor. of secs. 20 and 21, T. 32 N., R. 1 E., NM Prin. Mer., Colorado, bears North, 2 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record; corner is by W. side of a draw, course S. 30 W.; thence over SE. slope.

76.30 Slope changes to SW.

79.23 'Perkins' 211th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record, except the distance to the SW. tree, which is 151 lks.

Around the post,

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 211. 1868-1925, and build a mound of stone around the monument.

Land, broken mountainous and rolling mesa.

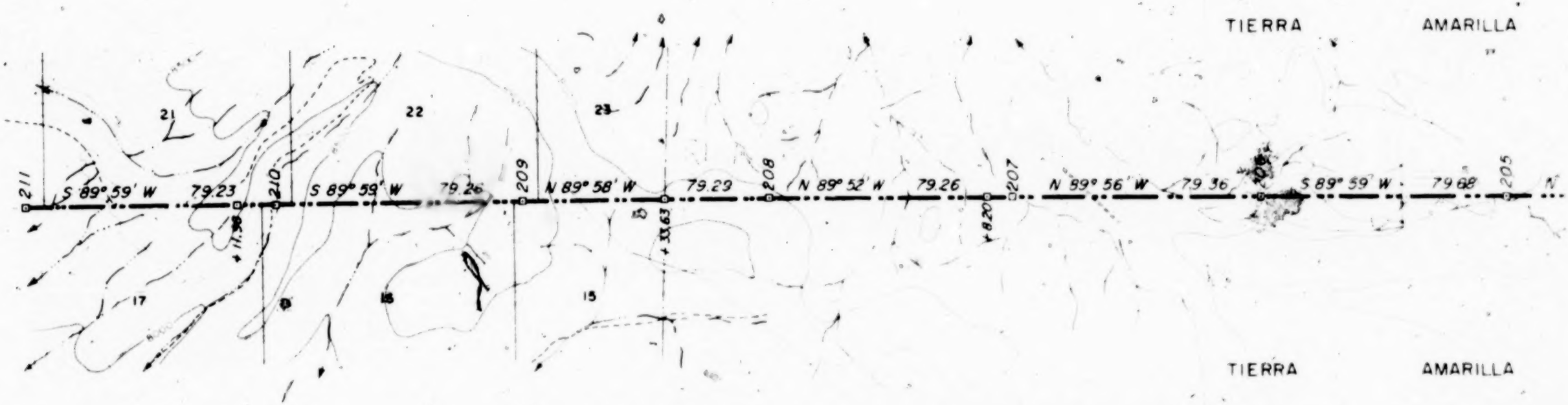
Soil, sandy and stony clay loam; 3rd rate.

Timber, pine with some aspen; undergrowth, oak brush.

C O L O R A D O

ARCHULETA COUNTY

TIERRA AMARILLA



TIERRA AMARILLA

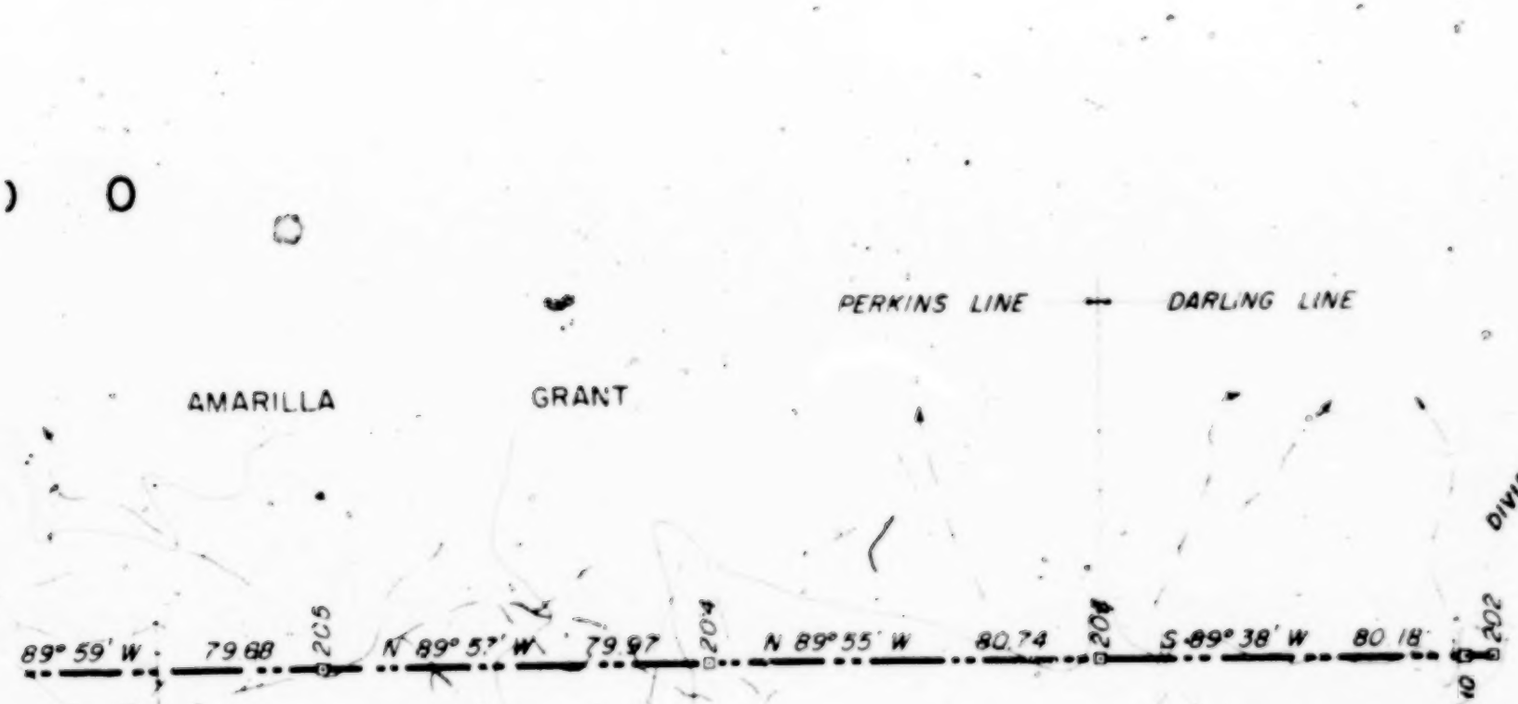
RIO ARRIBA COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 14, 1925

Joseph B. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 211

to

MILE CORNER No. 220

THE PERKINS LINE, 212TH MILE

Chains *RETRACEMENT*

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

47.73 N. 0.3 lks. to the parallel; thence the South Angle Point bears N. 0.7 lks. dist.; on this determination the true line bears N. 89° 59′ W.; thence N. 38° 00′ W., continuing with new measurement, on a retracement of the Perkins boundary, on a transit line describing a tangent.

53.19 Thence the North Angle Point bears W. 3.3 lks. dist.; on this determination the true line bears N. 38° 02′ W.; thence West, continuing with new measurement, on a retracement of the Perkins boundary, on a transit line describing a tangent.

78.29 The 213th Mi. Cor. was not established by Perkins; continue distance.

79.15 N. 0.8 lks. to the parallel; thence the witness cor. for the 213th Mi. Cor. bears N. 5.3 lks. dist.; on this determination the true line bears N. 89° 58′ W.; thence West, continuing with new measurement, on a retracement of the Perkins boundary, on a transit line describing a tangent.

9.68 Altitude observation on the sun for azimuth, August 22, 1932.

78.30 N. 0.8 lks. to the parallel; thence the 214th Mi. Cor. bears S. 4.3 lks. dist.; on this determination the true line bears S. 89° 58′ W.

REESTABLISHMENT

Thence from the 211th Mi. Cor. N. 89° 59′ W., on a reestablishment of the 212th mile.

Descend 230 ft. over SW. slope, through timber and undergrowth.

5.48 The closing cor. of secs. 17 and 18, T. 32 N., R. 1 E., NM Prin. Mer., New Mexico, bears South, 1 lk. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

25.20 Old log chute in small canon, course S. 70° W.; ascend 52 ft. over SE. slope.

32.10 Top of ascent; descend 468 ft. over S. and SW. slopes.

38.30 Slope changes to steep SW.

Chains

THE PERKINS LINE, 212TH MILE

39.50 Over very steep sandstone ledges.

47.73 Perkins' South Angle Point Cor.: an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked AP Mile Corner No. 211 + 47.73 Chs., 1868-1925, and build a mound of stone around the monument:

from which

Cross on a sandstone boulder, bears N. 14¾ E., 22.5 lks. dist., mkd. as recorded in the official record.

A yellow pine, 18 ins. diam., bears S. 43½ W., 148 lks. dist., mkd. as recorded in the official record.

A fir, 14 ins. diam., bears N. 59½ W., 166 lks. dist., mkd. DAR NM BT.

A fir, 22 ins. diam., bears N. 63½ E., 77 lks. dist., mkd. as recorded in the official record.

Cross on a sandstone boulder, bears S. 66½ E., 48 lks. dist., mkd. as recorded in the official record.

Thence from the South Angle Point, Mi. Cor. No. 211 + 47.73 Chs., N. 38° 02′ W., continuing on a reestablishment of the 212th mile, on the Ewell Canon Connection.

Descend 135 ft. over very broken SW. slope along the E. wall of Ewell Canon crossing draws and spurs sloping to the creek from the rim, through timber and undergrowth.

52.58 Small draw, course S. 15° W.

59.16 The closing cor. of secs. 7 and 18, T. 32 N., R. 1 E., NM Prin. Mer., New Mexico, bears West, 16 lks. dist.: an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

63.64 The Carpenter 120th Mi. Cor. bears North, 43.21 chs. dist.: an iron post, firmly set in ground and mound of earth; I remove this monument and obliterate the marks on the four bearing trees.

65.68 Draw, course S. 52° W.

78.73 Draw, course S. 52° W.

Chains

THE PERKINS LINE, 212TH MILE

88.72 The closing cor. of secs. 19 and 20, T. 32 N., R. 1 E., NM Prin. Mer., Colorado, bears East, 4 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

88.77 A yellow pine, 24 ins. diam., bears East, 2 lks. dist., mkd. with two notches on S. 38 E. and N. 38 W. faces.

99.00 The proportional point for Perkins' 212th Mi. Cor.; the corner was not established by Perkins; I did not establish this corner.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, spruce, fir, cedar, and pinon; undergrowth, oak brush.

THE PERKINS LINE, 213TH MILE

REESTABLISHMENT

Thence from the point for the 212th Mi. Cor., N. 38° 02' W., on a reestablishment of the 213th mile on the Ewell Canon Connection.

Descend 24 ft. to North Angle Point over SW. slope, through timber and undergrowth.

1.92 Perkins' North Angle Point Cor.; an iron post, 3 ins. diam., 16 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record, and only the stumps are left of the bearing trees.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked AP Mile Corner No. 212 + 1.18 Chs., 1868-1925, and build a mound of stone around the monument.

from which

A Douglas fir, 10 ins. diam., bears S. 48¼° E., 116 lks. dist., mkd. AP COLO BT.

A Douglas fir, 15 ins. diam., bears S. 56½° W., 118 lks. dist., mkd. AP NM BT.

Perkins' SE. rock is mkd. BO 212 +.

Perkins' NW. rock is mkd. BO 212 +.

hains THE PERKINS LINE, 213TH MILE

Thence from the North Angle Point, Mi. Cor. No. 212 + 1.18 Chs., N. 89° 58' W., continuing on a reestablishment of the 213th mile.

Descend 100 ft. over SW. slope, through timber and undergrowth.

6.08 Ewell Creek, 5 lks. wide, banks 2 ft. high, stream 6 ins. deep, course from S. 38° E. turning W., approximately 7 lks. N. of line.

6.48 The closing cor. of the NM Prin. Mer., New Mexico, bears South, 4 lks. dist.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

7.08 Creek, N. of line, turns N. 38° W.; ascend 463 ft. over NE. slope.

7.68 Road, bears N. 20° W. and S. 20° E.

7.90 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 212 + 7.90 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A white fir, 8 ins. diam., bears S. 46½° W., 42 lks. dist., mkd. WP NM BT.

A white fir, 8 ins. diam., bears N. 64½° W., 34 lks. dist., mkd. WP COLO BT.

13.28 Crest of spur ridge, bears N. 30° W. and S. 30° E.; descend 336 ft. over NW. and SW. slopes.

21.58 Crest of low ridge, bears N. 15° W. and SE.; slope changes to SW.

37.91 The Carpenter 119th Mi. Cor. bears North, 13.74 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument.

74.09 The closing cor. of the NM Prin. Mer., Colorado; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

79.33 The point for Perkins' 213th Mi. Cor., as determined by the witness corner to the 213th Mi. Cor.

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner

Chains

THE PERKINS LINE, 213TH MILE

No. 213, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 8 ins. diam., bears S. 30¾ W., 102 lks. dist., mkd. NM 213 M BT.

A yellow pine, 16 ins. diam., bears N. 5° W., 29 lks. dist., mkd. COLO 213 M BT.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, spruce, fir, balsam, and aspen; undergrowth, young timber and oak brush.

THE PERKINS LINE, 214TH MILE

REESTABLISHMENT

N. 89° 58' W., on a reestablishment of the 214th mile.

Ascend 4 ft. along SE. slope, through timber and undergrowth.

1.00 Perkins' witness corner to the 213th Mi. Cor.: an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record, except the marking "WC" was not found on any tree; I add the marks WC to the remaining trees.

Thence S. 89° 58' W., continuing on a reestablishment of the 214th mile.

Descend 380 ft. over broken SW. and W. slopes, through timber and undergrowth.

3.89 The closing cor. of secs. 11 and 12, T. 32 N., R. 1 W., NM Prin. Mer., New Mexico, bears South, 1 lk. dist., an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

6.20 Draw, course S. 20° W.

26.50 Slope changes to W.

34.92 The closing cor. of the N. and S. center line of sec. 24, T. 32 N., R. 1 W., NM Prin. Mer., Colorado; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

Cor. is by a fence cor.

hains THE PERKINS LINE, 214TH MILE

38.70 Trail, bears NE. and SW.

42.85 Irrigation ditch, 10 lks. wide, 2 ft. deep, course S. 20 W.

49.90 Construct a concrete monument, in a form 16x24x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 213 + 49.90 Chs., 1868-1925, and build a mound of stone around the monument; leave oak brush at foot of steep W. slope, bears N. 10 W. and S. 10 E.

50.10 N. side of state line marker, set by Blair Burwell, in 1901; a sandstone, 14x4x28 ins. above ground, firmly set, mkd. COL. WC 214 M on N. face.

50.30 Road from Chromo, Colorado, to Lumberton, New Mexico, bears N. 10 W. and S. 10 E.

50.81 The Carpenter 118.1 Mi. Cor. bears North, 13.78 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.

52.20 Creek, 5 lks. wide, 6 ins. deep, course N. 10 W. turning to N. 25 W.; ascend 19 ft. over NE. slope.

55.30 Top of ascent; descend 49 ft. over NW. slope.

55.60 Draw, course N. 15 W.; ascend 31 ft. over NE. slope.

56.20 Top of ascent; descend 58 ft. over NW. slope.

57.70 Enter Navajo valley and farm land, bears NE. and SW.

74.97 The closing cor. of secs. 23 and 24, T. 32 N., R. 1 W., NM Prin. Mer., Colorado; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

79.30 Perkins' 214th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post:

Construct a concrete monument, in a form 8x14x36 ins., standing 32 ins. above the ground, with rectangular base, 21x21x24 ins., top level with ground surface, with tablet seated in the top marked Mile Corner No. 214, 1868-1925.

Land, rolling and broken mountainous.

Soil, sandy and stony clay; 3rd rate; valley gumbo; 2nd rate.

Timber, pine in E. end of mile and cottonwoods near 214 Mi. Cor. undergrowth, oak brush.

The Perkins Line, 215th Mile

Chains

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

25.07 N. 0.4 lks. to the parallel; thence the Perkins Astronomical Monument No. 7 bears S. 0.4 lks. dist.; on this determination the true line bears S. 89° 59' W.; thence West, continuing with new measurement, on a retracement of the Perkins boundary, on a transit line describing a tangent.

8.83 Reference point for hour angle observation of Polaris for azimuth August 29, 1932.

56.67 N. 0.4 lks. to the parallel; thence the 215th Mi. Cor. bears S. 0.4 lks. dist.; on this determination the true line bears S. 89° 57' W.

REESTABLISHMENT

Thence from the 214th Mi. Cor. S. 89° 59' W., on a reestablishment of the 215th mile

Descend 13 ft. over nearly level bottom land, through cultivated field.

1.20 Draw, drains NW.

5.60 Left bank of the Navajo River, bears N. and S. 30° W.; maximum depth of stream 2 ft., course S. 30° W. from N.; leave field.

6.60 Right bank of river, bears N. and S. 30° W.

7.33 Woods road, bears N. 15° E. and S. 15° W.

10.00 Sawdust pile, 20 ft. high.

16.20 Leave sawdust pile; enter field, bears N. 15° E. and S. 15° W.

25.07 Darling's Astronomical Monument No. 7, as reestablished by Perkins in 1917; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., standing 32 ins. above the ground, with rectangular base, 21x21x24 ins., top level with ground surface, with tablet seated in the top marked Mile Corner No. 214 + 25.07 Chs., 1868-1925, elevation of tablet 7013.237 ft. above sea level;

THE PERKINS LINE, 215TH MILE

from which

United States Geological Survey Bench Mark, bears N. 47° 36' E., 7.045 chs. dist.; an aluminum tablet, set in top of a sandstone, 6x6x4 ins. above ground, firmly set, marked as described in the official record, published elevation 7038.356 ft. Bench Mark stands at the NW. corner of the old commissary building, Edith, Colorado.

Corner of Edith Schoolhouse, bears N. 24° 53' E., 3.71 chs. dist.

Thence from Darling's Astronomical Monument No. 7, Mi. Cor. No. 214 + 25.07 Chs., S. 89° 57' W., continuing on a reestablishment of the 215th mile.

Over level bottom land in field.

25.97 Foot of Cemetery Hill, bears N. 20° E. and S. 20° W.; ascend 165 ft. over S. 70° E. and N. slopes; leave field.

27.57 Road, bears N. 20° E. and S. 20° W.

27.67 Darling's Astronomical Monument No. 7, as reestablished by Blair-Burwell, in 1901; a sandstone, 6x18x16 ins. above ground, firmly set, mkd. COLO on N., NM on S., 901 on E., and B on W. face.

32.67 Crest of spur of Cemetery Hill, slopes N. 55° E.; thence along N. slope.

34.00 Construct a concrete monument, in a form 8x14x36 ins.; set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 214 + 34 Chs., 1868-1925, and build a mound of stone around the monument.

Monument stands on crest of Cemetery Hill; thence along top of hill.

35.35 The N. corner of cemetery fence, bears S., 5 lks. dist.; cemetery contains about 1 acre; descend 156 ft. over NW. slope.

43.27 Foot of Cemetery Hill, bears NE. and SW.; enter field in Coyote Creek valley.

45.52 Coyote Creek, 20 lks. wide, 6 ins. deep, immediate course S. 20° W.; general course S.

50.27 Begin ascent of 190 ft. over gentle E. slope.

53.21 The Carpenter Astronomical Monument No. 3, bears North, 13.41 chs. dist.; a sandstone, 12x14x78 ins., firmly set; I obliterate the marks on the stone and remove it from the field.

Chains	
	THE PERKINS LINE, 215TH MILE
59.16	The Carpenter 117th Mi. Cor. bears North, 13.48 chs. dist., an iron post, firmly set in ground and mound of earth; I remove the monument.
62.37	Leave field, enter scattering timber and undergrowth, bears N. 70° W. and S. 70° E.; leave valley; slope changes to NE.
66.00	Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 214 + 66 Chs., 1868-1925, and build a mound of stone around the monument.
	from which
	A pine, 24 ins. diam., bears S. 72° W., 243 lks. dist., mkd. WI NM BT.
	A pine, 24 ins. diam., bears N. 49½° W., 62 lks. dist., mkd. WI COLO BT.
	East edge of square top peak bears N. 20¾° E., vertical angle + 2½'.
	South point of Banded peak, bears N. 70° 28' E., vertical angle +3° 10'.
75.97	The closing cor. of secs. 22 and 23, T. 32 N., R. 1 W., NM Prin. Mer., Colorado; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.
81.74	Perkins' 215th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked as described in the official record.
	Around the post
	Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 215, 1868-1925, and build a mound of stone around the monument.
	from which
	A pine, 20 ins. diam., bears N. 40° E., 133 lks. dist., mkd. as recorded.
	A pine, 16 ins. diam., bears S. 16¾° E., 168 lks. dist., mkd. as recorded.
	A pine, 14 ins. diam., bears S. 30° W., 200 lks. dist., mkd. as recorded.
	A sandstone, bears S. 27½° W., 71 lks. dist., not mkd.

THE PERKINS LINE, 215TH MILE

A pine, 16 ins. diam., bears N. 53¼ W., 190 lks. dist., mkd. as recorded.

Land, gently rolling valley and slightly mountainous over Cemetery Hill and W. of valley.

Soil, sandy and rocky clay and gumbo; 2nd and 3rd rate.

Timber, pine; undergrowth, oak brush.

THE PERKINS LINE, 216TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

82.54 N. 0.8 lks. to the parallel; thence the 216th Mi. Cor. bears S. 3.8 lks. dist.; on this determination the true line bears S. 89° 58' W.

REESTABLISHMENT

Thence from the 215th Mi. Cor. S. 89° 58' W., on a reestablishment of the 216th mile.

Ascend 715 ft. over broken E. slope, through timber and undergrowth.

3.78 The closing cor. of secs. 9 and 10, T. 32 N., R. 1 W., NM Prin. Mer., New Mexico, bears North, 3 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

9.10 Crest of ridge, bears NE. and SW.

15.00 Road, bears N. 30° E. and S. 30° W.

35.60 Slope changes to SE.

38.80 Same road, bears N. 55° W. and S. 55° E.

42.00 Slope changes to NE.

49.17 Fence, bears N. and S.; E. and W. road bears N., 40 lks. dist.; thence along S. side of road.

57.60 Road turns NW.

59.27 The Carpenter 116th Mi. Cor. bears North, 13.73 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

THE PERKINS LINE; 216TH MILE

60.00 Small stream, 1 lk. wide, 2 ins. deep, course S. 85° E.

74.11 The closing cor. of secs. 21 and 22, T. 32 N., R. 1 W., NM Prin. Mer., Colorado, bears North, 1.5 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

74.40 Seepage of water, course S. 70° E.

81.65 Fence, bears N. 35° W. and S. 35° E.

82.54 Perkins' 216th Mi. Cor.: an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 216, 1868-1925, and build a mound of stone around the monument.

from which

Cross on sandstone boulder, bears N. 18° W., 24 lks. dist., mkd as recorded.

Land, mountainous, E. slope of Archuleta Mountain.

Soil, sandy and stony black loam; 2nd rate.

Timber, pine; undergrowth, oak brush and alders.

THE PERKINS LINE, 217TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

83.02 N. 0.8 lks. to the parallel; thence the 217th Mi. Cor. bears S. 54 lks. dist.; on this determination the true line bears S. 89° 58' W.

REESTABLISHMENT

Thence from the 216th Mi. Cor. S. 89° 58' W., on a reestablishment of the 217th mile.

Ascend 1152 ft. over broken SE. slope, through scattering timber and dense undergrowth; up a small drain.

0.25 Small stream, 4 lks. wide, general course S. 60° E.

hours

THE PERKINS LIST, 217TH MILE

1.20 Leave stream bed.

2.28 The closing cor. of secs. 8 and 9, T. 32 N., R. 1 W., NM Prin. Mer., New Mexico, an iron post, 2 ins. diam., firmly set, with brass cap, marked and witnessed as described in the official record.

7.00 Draw, course SE.

28.00 Slope becomes gradual.

31.54 South, 1.5 lks. dist., an iron post, 2 in. diam., firmly set, with brass cap mkd. COLO. ¼ CC in N., TR 44 in E., S 21 in W., S 8, NM. 1918 COLO in S. quadrants.

32.50 Slope changes from gradual to steep SE.

34.50 Enter aspen, spruce, and fir timber, bears N. 70 W. and S. 70 E.

58.30 Foot of slide rock, bears NE. and SW., leave timber and undergrowth.

63.40 Leave slide rock, reenter timber and undergrowth.

63.87 The Carpenter 114.9 Mi. Cor. bears North, 13.71 chs. dist., an iron post, firmly set in ground and mound of stone. I remove this monument and obliterate the marks on the four bearing trees.

71.37 The closing cor. of secs. 20 and 21, T. 32 N., R. 1 W., NM Prin. Mer., Colorado, an iron post, 2 ins. diam., firmly set, with brass cap, marked and witnessed as described in the official record.

76.90 Top of steep ascent on E. face of Archuleta Mountain, bears NE. and S. 30 W.

78.70 Crest of Archuleta Mountain, descend 13 ft. over gentle NW. slope.

82.59 The closing cor. of secs. 7 and 8, T. 32 N., R. 1 W., NM Prin. Mer., New Mexico, an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

85.02 Perkins' 217th Mi. Cor., an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x35 ins., set 16 ins. in the ground to bed rock, with tablet seated in the top marked Mile Corner No. 217, 1868-1925, and build a mound of stone around the monument.

Chains

THE PERKINS LINE, 217TH MILE

from which

A yellow pine, 28 ins. diam., bears S. 88° E., 161 lks. dist., mkd. as recorded.

A fir, 20 ins. diam., bears N. 68° W., 172 lks. dist., mkd. as recorded.

Land, mountainous, E. slope and crest of Archuleta Mountain.

Soil, stony clay loam; 2nd and 3rd rate.

Timber, pine, spruce, fir, and aspen; undergrowth, oak brush.

THE PERKINS LINE, 218TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

05.68 N., 11 lks. to the parallel, thence the 218th Mi. Cor. bears N. lks. dist., on this determination the true line bears West.

REESTABLISHMENT

Thence from the 217th Mi. Cor. West, on a reestablishment of the 218th mile.

Descend 160 ft. over gentle NW. slope, through timber and undergrowth.

25.75 Draw, drains S. 60° W., ascend 15 ft. over gentle SE. slope.

30.00 Enter grove of aspen, bears N. 70° W. and S.

32.08 Top of ascent, descend 250 ft. over SW. slope.

45.70 Leave aspen grove, bears N. 20° W. and S. 20° E., enter open park.

51.00 Leave open park, enter timber and undergrowth.

54.63 The Carpenter 114th Mi. Cor. bears North, 13.61 chs. dist., an iron post, firmly set in ground and mound of stone. I remove this monument and obliterate the marks on the three bearing trees.

58.00 Enter aspen grove, bears N. and S.

60.30 Leave aspen grove, bears N. and S., continue through timber and undergrowth.

62.98 Draw, course S., ascend 15 ft. over SE. slope.

THE PERKINS LINE, 218TH MILE

68.22 The closing cor. of secs. 19 and 20, T. 32 N., R. 1 W., NM Prin. Mer., Colorado, bears North, 4.5 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record

68.50 Top of ascent, descend 92 ft. over gentle W. slope

74.07 The closing cor. of Tps. 32 N., Rs. 1 and 2 W., NM Prin. Mer., New Mexico, and the NE. cor. of the Jicarilla Apache Indian Reservation, bears North, 3.5 lks. dist.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record

75.68 Perkins' 218th Mi. Cor., an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 218, 1868-1925, and build a mound of stone around the monument.

from which

A yellow pine, 20 ins. diam., bears N. 22½ E., 66 lks. dist., mkd. as recorded.

A yellow pine, 24 ins. diam., bears S. 56 E., 28 lks. dist., mkd. as recorded.

A yellow pine, 22 ins. diam., bears S. 13 W., 119 lks. dist., mkd. as recorded.

A yellow pine, 18 ins. diam., bears N. 80½ W., 138 lks. dist., mkd. as recorded

Land, rolling mountainous, top of Archuleta Mountain.

Soil, sandy and stony clay-loam, 2nd and 3rd rate

Timber, pine, spruce, fir, and aspen; undergrowth, oak brush.

THE PERKINS LINE, 219TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

Chains THE PERKINS LINE, 219TH MILE

84.41 Altitude observation on the sun for time, and hour angle observati of Polaris for azimuth, September 1, 1932.

95.76 The 219th Mi. Cor. was not established by Perkins.

113.21 N. 1.6 lks. to the parallel; thence the witness corner for the 21 Mi. Cor. bears S. 3.0 lks. dist.; on this determination the t line bears S. 89° 59' W.; thence West, continuing with new me urement, on a retracement of the Perkins boundary, on a tran line describing a tangent.

78.22 N. 0.8 lks. to the parallel; thence the 220th Mi. Cor. bears S. 1 lks. dist.; on this determination the true line bears S. 89° 55' W

REESTABLISHMENT

Thence from the 218th Mi. Cor. S. 89° 59' W., on a reestablishme of the 219th mile.

Descend 290 ft. over broken SW. slope, through timber and und growth.

9.90 Enter small grove of aspen, bears NE. and SW.

12.10 Leave aspen grove, bears N. and S.; continue through timber a undergrowth.

22.30 Draw, course S. 70° W. from N. 60° E.

28.36 The Gannett Monument, established at the intersection of the 10 meridian and the 37th parallel of latitude, bears North 10 chs. dist.

31.15 Same draw, course NW., 30 lks. to mouth.

32.60 Large draw, course S. 50° W. from N. 80° E.; ascend 28 ft. over S slope.

37.00 Top of ascent; descend 44 ft. over W. slope.

39.23 The Carpenter 113th Mi. Cor. bears North, 13.51 chs. dist.; an i post, firmly set in ground and mound of stone; I remove t monument and obliterate the marks on the four bearing trees.

44.30 Small draw, course S. 20° W.

47.50 Small draw, course S.; ascend 15 ft. over E. slope.

49.83 The closing cor. of Tps. 32 N., Rs. 1 and 1½ W., NM Prin. M Colorado, bears North, 1 lk. dist.; an iron post, 3 ins. diam.,

hains THE PERKINS LINE, 219TH MILE

ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

51.60 Top of ascent; descend 210 ft. over W. slope.

58.15 The closing cor. of secs. 11 and 12, T. 32 N., R. 2 W., NM Prin. Mer., New Mexico; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

70.40 East rim of small box canon, bears N. and S.

72.60 Bottom of canon, course S.; ascend 120 ft. over E. slope.

74.70 West rim of canon, bears N. and S.

78.30 Crest of spur ridge, bears N. and S.; descend 340 ft. over W. and S. slopes.

84.31 Outcrop of rock, on E. side of a box canon.
I seat a tablet in the rock marked Mile Corner No. 218 — 84.31 Chs., 1868-1925.

4.49 East rim of a box canon; rim rock, 65 ft. high, bears N. 10° E. and S. 30° W.

9.71 The closing cor. of Tps. 32 N., Rs. 1½ and 2 W., NM Prin. Mer., Colorado, bears North, 35.5 lks. dist.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

0.30 Creek in canon, 7 lks. wide, 4 ins. deep, course S., turning to S. 75° W. about 40 lks. S.

0.95 Creek in canon, 4 lks. wide, 2 ins. deep; course S. 20° W.; thence along S. slope.

5.71 The proportional point; the 219th Mi. Cor. was not established by Perkins.
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 219, 1868-1925, and build a mound of stone around the monument;
from which
A pine, 17 ins. diam., bears N. 12½° E., 51 lks. dist., mkd. COLO 219 M BT.
A Douglas fir, 9 ins. diam., bears S. 58½° W., 54 lks. dist., mkd. NM 219 M BT.

Chains THE PERKINS LINE, 219TH MILE

Land, rolling and broken mountainous, W. slope of Archuleta Mountain.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, spruce, fir, and aspen; undergrowth, young timber and oak brush.

THE PERKINS LINE, 220TH MILE

REESTABLISHMENT

S. 89° 50' W., on a reestablishment of the 220th mile.

Descend 16 ft. over SW. slope, through timber and undergrowth.

2.30 Foot of descent; ascend 24 ft. over SE. slope.

4.30 Top of ascent; descend 70 ft. over SW. slope.

7.44 The Carpenter 112.2 Mi. Cor. bears North, 13.40 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

11.50 Draw, course S.; ascend 123 ft. over SE. slope.

17.49 Perkins' witness corner to the 219th Mi. Cor.; an iron post, 3 ins. diam., 24 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.

In place of post

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 219 + 17.49 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 22 ins. diam., bears S. 57° E., 64 lks. dist., mkd. as recorded.

A dead yellow pine, 14 ins. diam., bears N. 58¾° W., 32 lks. dist., mkd. as recorded.

Monument stands on crest of a ridge, bearing N. 10° E. and S. 10° W.

Thence S. 89° 55' W., continuing on a reestablishment of the 220th mile.

Descend 60 ft. over SW. slope, through timber and undergrowth

THE PERKINS LINE, 220TH MILE

Chains	
21.29	Foot of descent; ascend 15 ft. over E. slope.
23.39	Crest of small ridge, bears N. 10° E., and S. 10° W.; descend 220 ft. over SW. slope.
31.29	Draw in small canon, course SW.; ascend 52 ft. over SE. slope.
36.09	Crest of spur, slopes S. 30° W.; descend 285 ft. over NW. slope.
42.21	The closing cor. of secs. 10 and 11, T. 32 N., R. 2 W., NM Prin. Mer., New Mexico, bears North, 9 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record, except it is marked R. 3 W. instead of R. 2 W.
45.04	Draw in canon, course S.; ascend 76 ft. over SE. slope.
49.14	Crest of spur, slopes S.; descend 371 ft. over broken top of spur and over NW. slope.
56.69	Leave top of spur; descend steep NW. slope.
63.89	Enter draw from N. 80° E. turning to W.
68.39	Creek, in Seguro Canon, 5 lks. wide, 6 ins. deep, course S. 35° W. from N.; ascend 247 ft. over SE. slope.
73.77	The closing cor. of secs. 23 and 24, T. 32 N., R. 2 W., NM Prin. Mer., Colorado, bears North, 8 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.
75.99	Broken sandstone rim rock, 30 ft. high, bears NE. and SW.
78.09	Crest of the S. end of rough, rocky spur, slopes S. 30° E.; descend 131 ft. over SW. slope.
78.59	Top of sandstone cliff, 60 ft. high, bears N. 70° W. and S. 70° E.
81.64	Draw in canon, course SE.; ascend 201 ft. over NE. slope.
87.79	Top of steep ascent; thence over gradual slope on top of ridge.
92.79	Crest of ridge, bears N. 15° W. and S. 15° E.; descend 21 ft. over SW. slope.
95.71	Perkins' 220th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Chains THE PERKINS LINE, 220TH MILE

Afound the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 220, 1868-1925, and build a mound of stone around the monument;

from which

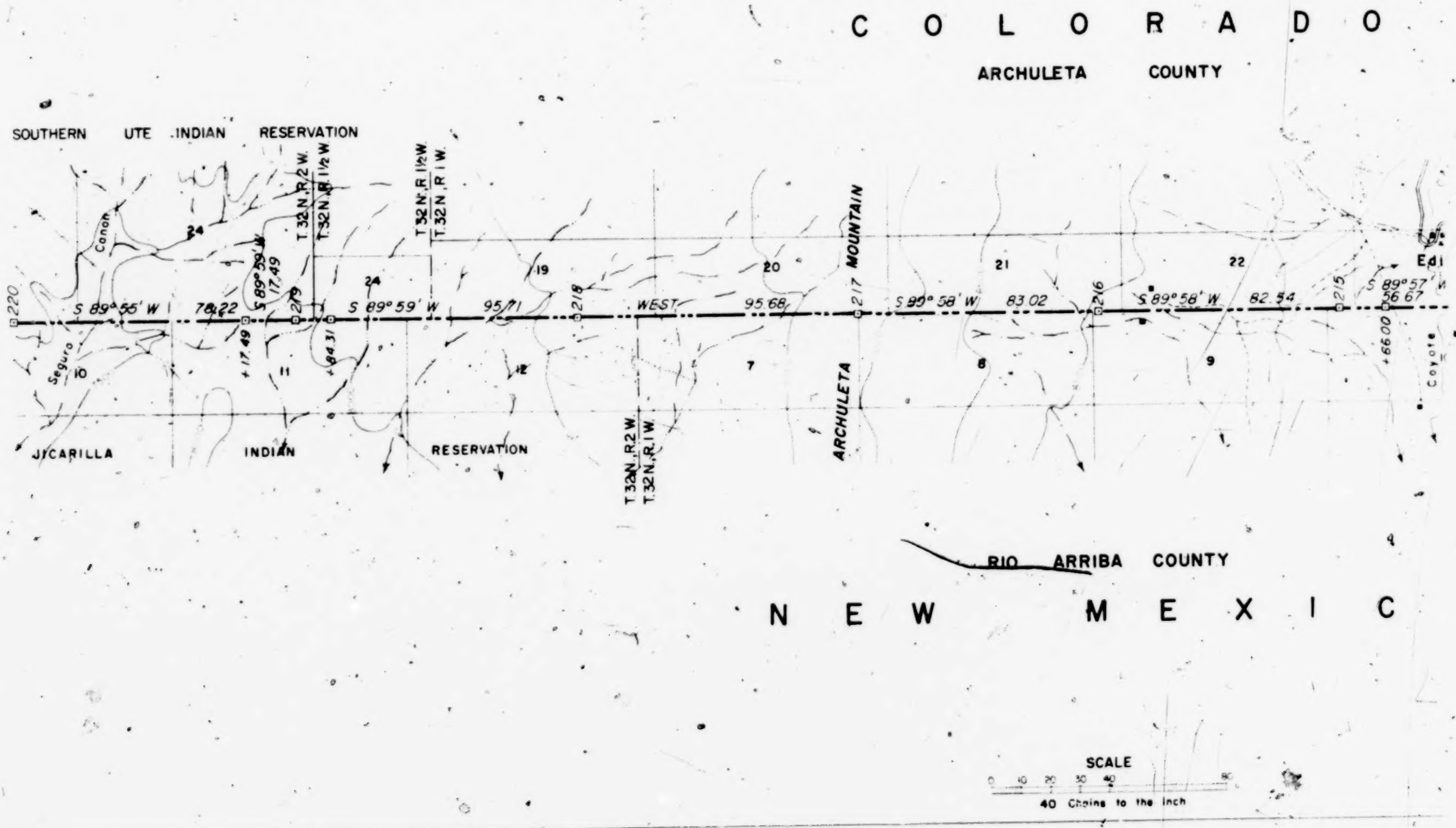
A yellow pine, 33 ins. diam., bears S. 35½ W., 82 lks. dist., mkd as recorded.

A yellow pine, 9 ins. diam., bears N. 55 W., 80 lks. dist., mkd as recorded.

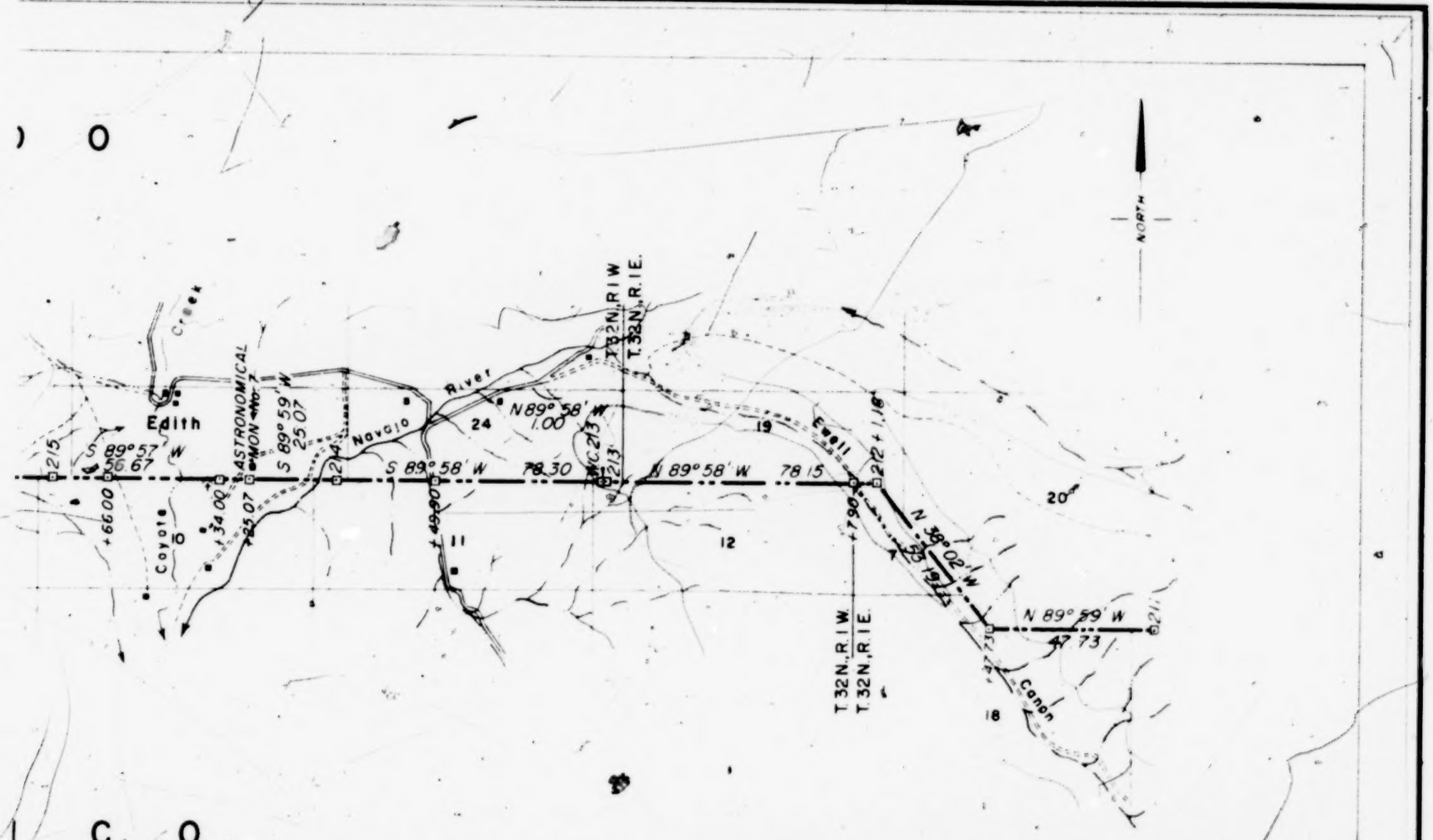
Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine; undergrowth, oak brush.



COLORADO
ARCHULETA COUNTY
SOUTHERN UTE INDIAN RESERVATION
T.32N.,R.2W.
T.32N.,R.1½W.
T.32N.,R.1½W.
T.32N.,R.1W.
Canon
Segura
220
S 89° 55' W
78.22
S 89° 59' W
17.49
+17.49
219
+84.31
24
S 89° 59' W
95.71
218
WEST
95.68
217
S 89° 58' W
83.02
216
S 89° 58' W
82.54
215
S 89° 57' W
56.67
+66.00
Edi
Coyote
19
20
21
22
10
11
12
7
8
9
JICARILLA
INDIAN
RESERVATION
T.32N.,R.2W.
T.32N.,R.1W.
ARCHULETA MOUNTAIN
RIO ARRIBA COUNTY
NEW MEXIC
SCALE
0 10 20 30 40 80
40 Chains to the Inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph A. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 220

to

MILE CORNER No. 228

THE PERKINS LINE, 221st MILE

Chains *RETRACEMENT*

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

95.76 The 221st Mi. Cor. was not established by Perkins; continue on tance.

112.24 N. 1.6 lks. to the parallel; thence the witness corner to the 221st Mi. Cor. bears S. 8.0 lks. dist.; on this determination the true line bears S. 89° 58' W.; thence West, continuing with new measurement, on a retracement of the Perkins boundary, on a transit line describing a tangent.

78.94 N. 0.8 lks. to the parallel; thence the 222nd Mi. Cor. bears N. 0 lks. dist.; on this determination the true line bears West.

REESTABLISHMENT

Thence from the 220th Mi. Cor. S. 89° 58' W., on a reestablishment of the 221st mile.

Descend 38 ft. over SW. slope, through timber and undergrowth.

9.80 Draw, drains S. 15° E.; ascend 12 ft. over E. slope.

4.25 Crest of rocky spur, slopes S.; descend 59 ft. over SW. slope.

6.14 The Carpenter 111th Mi. Cor. bears North, 13.04 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the four bearing trees.

8.25 Draw in canon; course S. 30° E.; ascend 443 ft. over NE. slope.

26.50 The closing cor. of secs. 9 and 10, T. 32 N., R. 2 W., NM Prin. Mer. New Mexico, bears North, 4.5 lks. dist.; an iron post, 2 ins. diam. firmly set, with brass cap marked and witnessed as described in the official record.

28.00 Crest of spur, slopes S. 65° E. from N. 30° W.; descend 17 ft. over SW. slope.

30.30 Draw, course SE.; ascend 159 ft. over SE. slope.

36.65 Crest of high spur ridge, bears N. and S.; descend 235 ft. over SW. slope.

44.90 Draw in canon, course S.; ascend 216 ft. over SE. and NE. slopes.

48.40 Draw, course S. 65° E.; thence over NE. slope.

Chains THE PERKINS LINE, 221st MILE

57.90 The closing cor. of secs. 22 and 23, T. 32 N., R. 2 W., NM Prin Mer., Colorado, bears South, 5 lks. dist., an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

58.55 Crest of Alto Mountain, bears N. and S., W., descend 340 ft. over NW. slope.

75.80 Foot of descent; ascend 24 ft. over NE. slope.

78.50 Small spur, slopes N.; descend 72 ft. over NW. slope.

80.75 Draw, course N., ascend 74 ft. over NE. slope.

83.75 Crest of spur, slopes N.; descend 140 ft. over NW. slope.

86.71 The Carpenter 110th Mi. Cor. bears North, 13.29 chs. dist., an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

89.60 Draw in short canon, course NW.; ascend 89 ft. over NE. slope.

92.80 Spur, slopes N.; descend 26 ft. over NW. slope.

95.37 The proportional point; the 221st Mi. Cor. was not established by Perkins

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground with tablet seated in the top marked Mile Corner No. 221, 1868-1925, and build a mound of stone around the monument;

from which

A Douglas fir, 9 ins. diam., bears N. 80½ E., 76 lks. dist., mkd. COLO 221 M BT.

A Douglas fir, 6 ins. diam., bears S. 33¼ E., 20 lks. dist., mkd. NM 221 M BT.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, fir, spruce, and cedar; undergrowth, young timber; oak brush, and buck brush.

THE PERKINS LINE, 222ND MILE

Chains *REESTABLISHMENT*

S. 89 58' W., on a reestablishment of the 222nd mile.

Descend 364 ft. over NW. and SW. slopes, through timber and undergrowth.

0.16 A yellow pine, 22 ins. diam., mkd. with two notches on E. and W. face.

4.90 Slope changes to SW.

9.70 Slope changes to NW.

10.61 The closing cor. of secs. 8 and 9, T. 32 N., R. 2 W., NM Prin. Mer. New Mexico, bears North, 5 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

11.15 Top of a sandstone rim rock, 20 ft. high, bears NE. and SW.

12.80 Top of a sandstone rim rock, 20 ft. high, bears NE. and SW.

16.30 Foot of steep descent; enter valley, bears 30 E. and S. 30 W.

16.92 Perkins' witness corner to the 221st Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 221 + 16.92 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 10 ins. diam., bears N. 81 E., 56 lks. dist., mkd. as recorded.

A yellow pine, 16 ins. diam., bears S. 29½ W., 168 lks. dist., mkd. as recorded.

A Douglas fir, 20 ins. diam., bears N. 34½ W., 50 lks. dist., mkd. as recorded.

Thence from Perkins' witness corner to the 221st Mi. Cor., West continuing on a reestablishment of the 222nd mile.

Descend 16 ft. over W. slope in valley, through timber and undergrowth.

Chains

THE PERKINS LINE, 222ND MILE

18.97 Creek, in Agua Canon, 6 lks. wide, 6 ins. deep, course SW.; leave valley; ascend 390 ft. over SE. slope.

41.37 Crest of spur, slopes SE.; descend 410 ft. over SW. slope.

42.60 The closing cor. of secs. 21 and 22, T. 32 N., R. 2 W., NM Prin. Mer., Colorado, bears South, 7 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

58.87 Draw in canon, course S. 7° W. from N. 11° E.; ascend 455 ft. over NE. slope.

71.58 The Carpenter 109th Mi. Cor. bears North, 13.06 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the two bearing trees.

73.97 Crest of spur, slopes S. 10° W.; descend 20 ft. over SW. slope.

75.92 Head of draw, course S. 10° E.; ascend 20 ft. over SE. slope.

78.32 Crest of spur ridge, bears N. 20° E. and S. 30° W.; descend 200 ft. over SW. slope.

80.77 The closing cor. of secs. 7 and 8, T. 32 N., R. 2 W., NM Prin. Mer., New Mexico; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

84.97 Draw, course SW.; ascend 10 ft. over SE. slope.

85.86 Perkins' 222nd Mi. Cor.: an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 222, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 18 ins. diam., bears N. 3½° E., 24 lks. dist., mkd. as recorded.

A yellow pine, 14 ins. diam., bears S. 55° E., 36 lks. dist., mkd. as recorded.

A yellow pine, 14 ins. diam., bears S. 72½° W., 33 lks. dist., mkd. as recorded.

Chains

THE PERKINS LINE, 222ND MILE

A yellow pine, 16 ins. diam., bears N. 78° W., 76 lks. dist., mkd. as recorded.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, spruce, fir, cedar, and pinon; undergrowth, young timber, oak, service and buck brush.

THE PERKINS LINE, 223RD MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

95.59 N. 1.1 lks. to the parallel; thence the 223rd Mi. Cor. bears S. 1.0 lks. dist.; on this determination the true line bears West.

REESTABLISHMENT

Thence from the 222nd Mi. Cor. West, on a reestablishment of the 223rd mile.

Ascend 130 ft. over SE. slope, through timber and undergrowth.

6.00 Enter cedar and pinon timber in scattering pine and fir timber.

11.20 Crest of spur ridge, bears N. 50° E. and slopes S. 50° W.; descend 807 ft. over broken SW. slope.

27.06 The closing cor. of secs. 20 and 21, T. 32 N., R. 2 W., NM Prin. Mer., Colorado, bears South, 7.5 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

47.40 Enter draw, from N. 75° E.

49.70 Leave draw, turning to SW.

55.25 The Carpenter 108th Mi. Cor. bears North, 13.02 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

60.00 Draw, course S. 70° W.

62.00 Same draw, course N. 80° W.; thence along N. slope.

67.00 Spur, slopes N. 40° W.; thence over W. slope.

Chains

THE PERKINS LINE, 223RD MILE

73.32 The closing cor. of Tps. 32 N., Rs. 2 and 3 W., NM Prin. Mer., New Mexico, bears South, 4 lks. dist.; an iron post, 2 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

82.00 Draw in canon, course S. 10 W.; ascend 167 ft. over SE. slope.

84.55 Crest of spur, slopes S. 20 W.; descend 15 ft. over SW. slope.

85.59 Perkins' 223rd Mi. Cor.: an iron post, 3 ins. diam., 20 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 223, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 20 ins. diam., bears N. 26½ E., 131 lks. dist., mkd. as recorded.

A yellow pine, 20 ins. diam., bears S. 55½ W., 21 lks. dist., mkd. as recorded.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, spruce, fir, cedar, and pinon; undergrowth, young timber and oak brush.

THE PERKINS LINE, 224TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

82.80 N. 0.2 lks. to the parallel; thence the witness corner bears N. 0.2 lks. dist.; altitude observation on the sun for time, and hour angle observation of Polaris for azimuth, September 13, 1932; on this determination the true line bears West; thence West, continuing with new measurement, on a retracement of the Perkins boundary, on a transit line describing a tangent.

83.57 N. 0.2 lks. to the parallel; thence the 224th Mi. Cor. bears S. 0.2 lks. dist.; on this determination the true line bears West.

THE PERKINS LINE, 224TH MILE

REESTABLISHMENT

Chains	
	Thence from the 223rd Mi. Cor. West, on a reestablishment of the 224th mile.
	Descend 61 ft. over SW. slope, through timber and undergrowth.
3.10	Draw, course S. 20° W.; ascend 97 ft. over SE. slope.
10.30	Crest of spur, slopes S. 10° W.; descend 133 ft. over SW. slope.
11.61	The closing cor. of secs. 19 and 20, T. 32 N., R. 2 W., NM Prin Mer., Colorado, bears South, 7 lks. dist.; an iron post, 2 ins. diam. loosely set, with brass cap marked and witnessed as described in the official record. Corner leans badly to the S.
20.80	Foot of descent; ascend 25 ft. along S. slope.
23.00	Top of ascent, at top of sandstone cliff, 20 ft. high; descend 394 ft along cliff and over SW. slope.
28.50	Leave sandstone cliff, bears N. 70° W.
38.01	The point for the Carpenter 107.025 Mi. Cor. bears North, 12.9[illegible] chs. dist.; point falls in the present bed of the Navajo River; I obliterate the marks on the remaining bearing tree.
38.98	Telephone and telegraph line, bears N. 35° W. and S. 35° E.
40.80	Wagon road, bears N. 10° W. and S. 35° E.; foot of steep descent enter Navajo valley.
40.90	Construct a concrete monument, in a form 16x24x36 ins., set 24 ins in the ground, with tablet seated in the top marked Mile Corner No. 223 + 40.90 Chs., 1868-1925, and build a mound of stone around the monument.
41.23	Denver and Rio Grande Western Railroad, curving from SE. to N.
42.86	Darling's witness corner, as reestablished by Perkins in 1917; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.
44.00	Right bank of the Navajo River, bears N. 60° W. and S. 60° E., course of river N. 60° W.
46.80	Left bank of river, bears N. 60° W. and S. 60° E.
48.80	Leave valley; bears N. and S.; ascend 410 ft. over steep E. slope.

Chains

THE PERKINS LINE, 224TH MILE

55.89 The closing cor. of secs. 11 and 12, T. 32 N., R. 3 W., NM Prin. Mer., New Mexico, bears North, 2.5 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

58.50 Crest of spur, slopes S. 5° W.; descend 96 ft. over broken SW. slope.

70.15 Draw, course S. 20° E.

71.15 Draw, course SE.; draws join about 50 lks. S.; ascend 134 ft. over NE. slope.

86.43 Perkins' 224th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 224, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 18 ins. diam., bears N. 61¾° E., 63 lks. dist., mkd. as recorded.

Cross on a sandstone boulder, bears N. 10° 55' W., 63.5 lks. dist., mkd. as recorded.

Land, broken mountainous.

Soil, sandy and stony clay; 2nd and 3rd rate.

Timber, pine, cedar, and pinon, with cottonwoods in river bottom; undergrowth, young timber, oak brush with willow brush in bottom.

THE PERKINS LINE, 225TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

78.75 N. 0.8 lks. to the parallel; thence the 225th Mi. Cor. bears S. 5.2 lks. dist.; on this determination the true line bears S. 89° 58' W.

THE PERKINS LINE, 225TH MILE

Chains *REESTABLISHMENT*

Thence from the 224th Mi. Cor. S. 89° 58' W., on a reestablishment of the 225th mile.

Ascend 16 ft. over rolling SE. and SW. slopes on low flat spur through timber and undergrowth.

1.33 The closing cor. of Tps. 32 N., Rs. 2 and 3 W., N.M. Prin. Mer. Colorado, an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

5.00 Top of ascent; descend 154 ft. over gentle SW. slope.

6.85 The Carpenter 106.338 Mi. Cor., bears North, 12.75 chs. dist.; 4 iron posts firmly set in ground and mound of stone. I remove this monument and obliterate the marks on the two bearing trees and on the bearing object.

10.60 Slope becomes steep.

18.40 Draw in small canon, course S. 30° E.; ascend 332 ft. over NE. and SE. slopes.

21.86 The closing cor. of the E. 1/16 sec. line, sec. 24, Colorado, an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

26.20 Slope changes to SE.

41.30 Top of ascent; descend 24 ft. over SW. slope.

42.46 The closing cor. of the center line of sec. 24, Colorado, bears North 1.5 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

44.25 Small draw, course SE.; ascend 218 ft. over E. slope.

54.09 The closing cor. of secs. 10 and 11, T. 32 N., R. 3 W., N.M. Prin. Mer., New Mexico, bears South, 10 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

56.10 Crest of ridge, bears N. 20° E. and S. 20° W.; descend 363 ft. over NW. slope.

65.29 The closing cor. of the W. 1/16 line, sec. 24, Colorado, bears North 4 lks. dist.; an iron post, 1 in. diam., firmly set with brass cap marked and witnessed as described in the official record.

THE PERKINS LINE, 225TH MILE

71.05 Draw in canon course N. 10 E., ascend 158 ft. over NE. slope

78.75 Perkins' 225th Mi. Cor.: an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 225, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 10 ins. diam., bears N. 45° E., 49 lks. dist., mkd. as recorded.

A yellow pine, 12 ins. diam., bears S. 59° E., 102 lks. dist., mkd. as recorded.

Cross on a sand-stone boulder, bears S. 44° 07' W., 45.5 lks. dist., mkd. as recorded.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, cedar, and pinon; undergrowth, oak brush.

THE PERKINS LINE, 226TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

4.00 Altitude observation on the sun for azimuth, September 15, 1932.

6.40 Altitude observation on the sun for azimuth, September 17 and 19, 1932.

8.83 N. 0.8 lks. to the parallel; thence the 226th Mi. Cor. bears S. 0.2 lks. dist.; on this determination the true line bears West.

REESTABLISHMENT

Thence from the 225th Mi. Cor. West, on a reestablishment of the 226th mile

Ascend [illegible] ft. over NE. slope, through timber and undergrowth

Chains	THE PERKINS LINE, 226TH MILE
4.00	Crest of spur ridge, bears NW. and S.; descend 262 ft. over S. slope.
4.87	The closing cor. of secs. 23 and 24, T. 32 N., R. 3 W., NM P. Mer., Colorado; an iron post, 2 ins. diam., firmly set, with bra cap marked and witnessed as described in the official record.
10.16	The Carpenter 105.3 Mi. Cor. bears North, 12.64 chs. dist.; an iro post, firmly set in ground and mound of stone; I remove th monument and obliterate the marks on the four bearing trees.
20.55	Draw, at forks, course N. 25 W. from S. 70 E. and S. 15 E.; a cend 40 ft. over NE. slope.
22.15	Crest of small spur, slopes N. 25 W.; descend 63 ft. over NW. slop
22.67	The closing cor. of the E. 1/16 line, sec. 23, Colorado; an iron pos 1 in. diam., firmly set, with brass cap marked and witnessed a described in the official record.
25.10	Draw, course N.; ascend 63 ft. over NE. slope.
28.00	Crest of small spur, slopes N.; descend 45 ft. over NW. slope.
29.20	Draw, course N.; ascend 276 ft. over NE. slope.
40.03	The closing cor. of the center line, sec. 23, Colorado, bears South 10 lks. dist.; an iron post, 1 in. diam., firmly set, with brass ca marked and witnessed as described in the official record.
43.10	Top of steep ascent; thence over gentle NE. slope.
44.00	Top of ascent; descend 130 ft. over N. and NW. slopes.
51.96	The closing cor. of secs. 9 and 10, T. 32 N., R. 3 W., NM Prin. Mer New Mexico, bears South, 9 lks. dist.; an iron post, 2 ins. diam firmly set, with brass cap marked and witnessed as described i the official record.
57.10	Draw, near head of cañon, course N.; ascend 150 ft. over E. an NE. slopes.
63.50	The closing cor. of the W. 1/16 line, sec. 23, Colorado, bears North 9 lks. dist.; an iron post, 1 in. diam., firmly set, with brass ca marked and witnessed as described in the official record.
67.00	Crest of the divide between the Navajo and San Juan Rivers, bear N. 15 W. and S. 30 E.; descend 116 ft. over SW. slope.

THE PERKINS LINE, 226TH MILE

Chains

74.60 Draw, course S. 20° W.; ascend 50 ft. over SE. slope.

78.53 Perkins 226th Mi. Cor., an iron post, 3 ins. diam., 16 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 226, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 5 ins. diam., bears N. 53° E., 42 lks. dist., mkd. as recorded.

Monument stands on a small spur, sloping S.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, pinon, and cedar; undergrowth, oak brush.

THE PERKINS LINE, 227TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

7.50 Altitude observation on the sun for azimuth, September 19, 1932.

8.79 N. 0.8 lks. to the parallel; thence the 227th Mi. Cor. bears S. 5.3 lks. dist.; on this determination the true line bears S. 89° 58' W.

REESTABLISHMENT

Thence from the 226th Mi. Cor. S. 89° 58' W., for a reestablishment of the 227th mile.

Descend 310 ft. over SW. and W. slopes, through timber and undergrowth.

9.03 The closing cor. of secs. 22 and 23, T. 32 N., R. 3 W., NM Prin. Mer., Colorado, bears North, 1 lk. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record; corner is in a small drain, course S. 60° W.

7.00 Leave cedar and pinon timber; continue in pine.

Chains	THE PERKINS LINE, 227TH MILE
12.00	Enter small valley, bears W.
23.64	The closing cor. of the E. 1/16 line, sec. 22, Colorado, bears Nor 6 lks. dist.; an iron post, 1 in. diam., firmly set, with brass c marked and witnessed as described in the official record.
24.00	Thence along a broken S. slope.
35.30	The Carpenter 104th Mi. Cor. bears North, 12.53 chs. dist., an ir post, firmly set in ground and mound of stone; I remove th monument and obliterate the marks on the four bearing trees.
36.20	A spring, the first water in the canon, bears South, about 1.30 ch dist.
38.50	Top of a boulder, 15 ft., N. and S., by 12 ft., E. and W.
41.90	Spring branch, in canon, 3 lks. wide, 3 ins. deep, course N. 70 W general course W.
43.50	The closing cor. of the center line, sec 22, Colorado, bears Sout 6 lks. dist.; an iron post, 1 in. diam., firmly set, with brass ca marked and witnessed as described in the official record.
45.90	Same stream.
48.20	Same stream, course N. turning to W. and NW.
52.45	The closing cor. of secs. 8 and 9, T. 32 N., R. 3 W., NM Prin. Me New Mexico, bears South, 4 lks. dist.; an iron post, 2 ins. diam firmly set, with brass cap marked and witnessed as described the official record.
55.00	Leave valley; ascend 308 ft. over NE. slope.
63.23	The closing cor. of the W. 1/16 line, sec. 22, Colorado, bears Sout 2 lks. dist.; an iron post, 1 in. diam., firmly set, with brass ca marked and witnessed as described in the official record.
78.79	Perkins' 227th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. abo ground, firmly set, with brass cap marked as described in t official record. Around the post Construct a concrete monument, in a form 8x14x36 ins., set 20 i in the ground, with tablet seated in the top marked Mile Corn No. 227, 1868-1925, and build a mound of stone around t monument;

THE PERKINS LINE, 227TH MILE

from which

A pinon, 10 ins. diam., bears N. 10° E., 38 lks. dist., mkd. as recorded.

A black jack pine, 16 ins. diam., bears S. 53¼° E., 58 lks. dist., mkd. as recorded.

A yellow pine, 22 ins. diam., bears S. 52½° W., 175 lks. dist., mkd. as recorded.

A black jack pine, 12 ins. diam., bears N. 57¼° W., 78 lks. dist., mkd. as recorded.

Land, broken mountainous.

Soil, sandy and stony clay: 3rd rate.

Timber, pine, cedar, and pinon; undergrowth, oak brush.

THE PERKINS LINE, 228TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

14.60 Altitude observation on the sun for azimuth, September 21, 1932.

18.74 N. 0.8 lks. to the parallel; thence the 228th Mi. Cor. bears S. 2.2 lks. dist.; on this determination the true line bears S. 89° 59' W.

REESTABLISHMENT

Thence from the 227th Mi. Cor. S. 89° 59' W., on a reestablishment of the 228th mile.

Ascend 2 ft. over N. slope, through timber and undergrowth.

3.90 Crest of spur, slopes N. 20° W.; descend 72 ft. over NW. slope.

5.82 The closing cor. of secs. 21 and 22, T. 32 N., R. 3 W., N.M. Prin. Mer., Colorado; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

10.00 Draw, course NW.

12.80 Draw, course N. 25° E.; ascend 68 ft. over NE. slope.

17.80 Crest of spur, slopes N. 10° W.; descend 120 ft. over SW. slope.

22.89 The closing cor. of the E. 1/16 line, sec. 21, Colorado; an iron post,

Chains THE PERKINS LINE, 228TH MILE

1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

26.90 Draw, course NW.; ascend 5 ft. over NE. slope.

28.00 Point of spur, slopes N.; descend 53 ft. over NW. slope.

31.85 Same draw, course S. 20 W.; ascend 50 ft. over SE. slope.

36.00 Crest of spur, slopes S.; descend 433 ft. over SW. slope.

36.49 The Carpenter 103rd Mi. Cor. bears North, 2.25 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the bearing tree.

42.70 The closing cor. of the center line, sec. 21, Colorado; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

51.14 The closing cor. of secs. 7 and 8, T. 32 N., R. 3 W., NM Prin. Mer., New Mexico, bears South, 16 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

62.60 Enter small valley, bears N. and S.

64.65 Spring branch, 2 lks. wide, 2 ins. deep, course N.; general course N. 10 W.

65.90 Leave valley, bears N. and S.; ascend 122 ft. over NE. slope.

71.60 Top of steep ascent; ascend slightly along steep N. slope.

78.74 Perkins' 228th Mi. Cor.: an iron post, 3 ins. diam., 12 ins. above ground firmly set, with brass cap marked and witnessed as described in the official record

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 228, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 20 ins. diam., bears N. 5 E., 61 lks. dist., mkd. as recorded.

Cross on a sandstone boulder, bears S. 63½ W., 44 lks. dist. mkd. as recorded.

Land, broken mountainous.

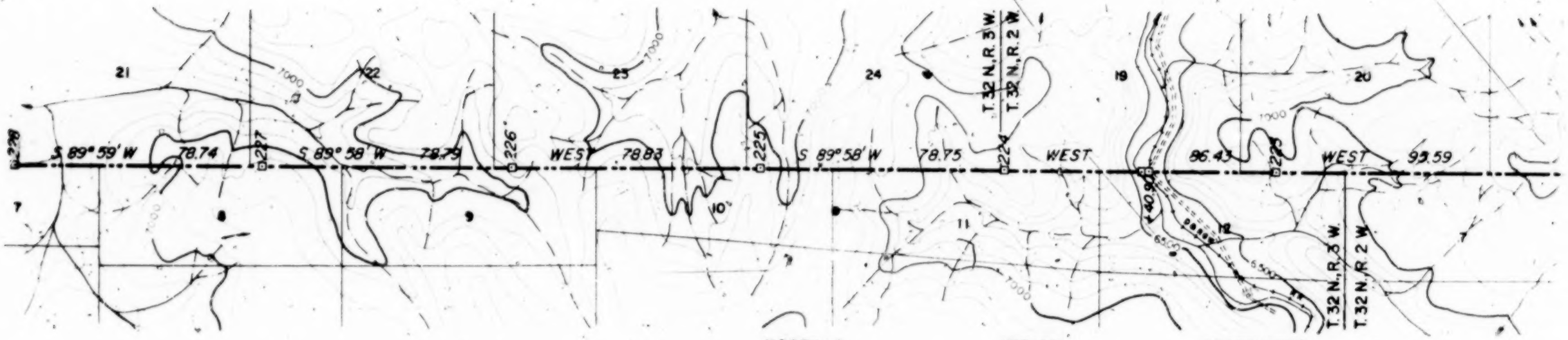
Soil, sandy and stony clay; 3rd rate.

Timber, pine, cedar, and pinon; undergrowth, oak brush.

C O L O R A D O

ARCHULETA COUNTY

SOUTHERN UTE INDIAN RESERVATION



JICARILLA INDIAN RESERVATION

RIO ARRIBA COUNTY

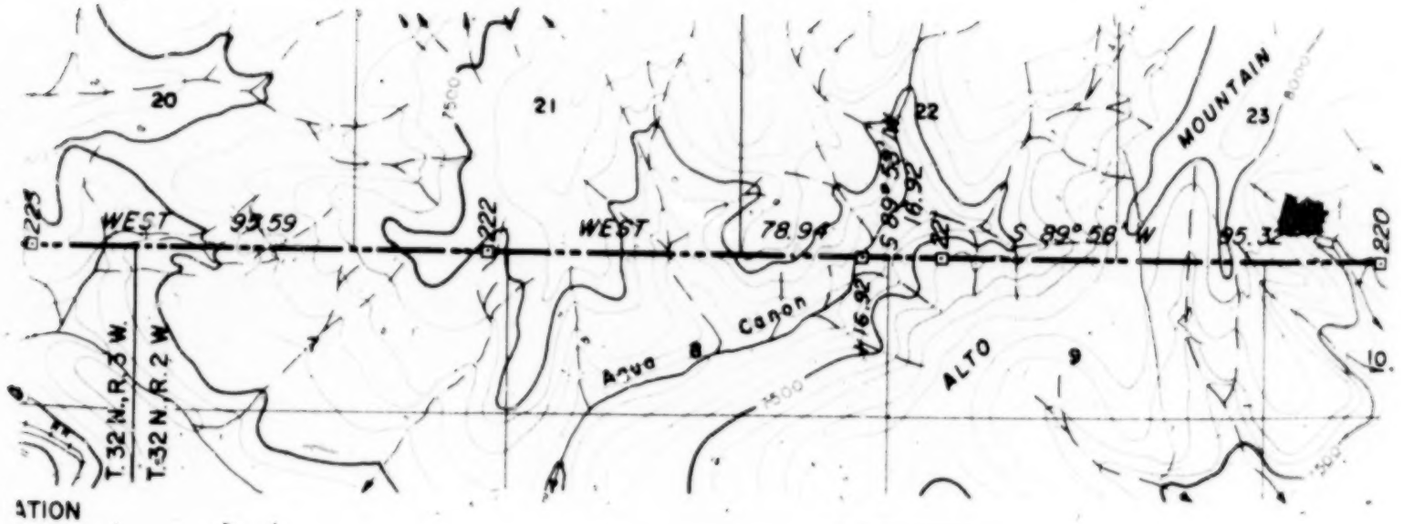
N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch

RESERVATION



ATION

C O

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph B. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 228

to

MILE CORNER No. 238

THE PERKINS LINE, 229TH MILE

Chains *RETRACEMENT*

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

74.81 N. 0.7 lks. to the parallel; thence the witness corner to the 229th Mi. Cor. bears S. 1.8 lks. dist.; on this determination the true line bears S. 89° 59′ W.; thence West, continuing with new measurement, on a retracement of the Perkins boundary, on a transit line describing a tangent.

4.00 The 229th Mi. Cor. was not established by Perkins.

82.71 N. 0.9 lks. to the parallel; thence the 230th Mi. Cor. bears N. 2.[illegible] lks. dist.; on this determination the true line bears N. 89° 59′ W.

REESTABLISHMENT

Thence from the 228th Mi. Cor. S. 89° 59′ W., on a reestablishment of the 229th mile.

Ascend 12 ft. over a steep N. slope, through timber and undergrowth.

2.80 Top of ascent; descend 22 ft. over NW. slope.

3.46 The closing cor. of secs. 20 and 21, T. 32 N., R. 3 W., NM Prin. Mer., Colorado; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

3.70 Small draw, course N. 30° E.; ascend 322 ft. over NE. and N. slope.

23.41 The closing cor. of the E. 1/16 line, sec. 20, Colorado, bears North 1.5 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

30.20 Top of NE. slope; thence over a broken N. slope.

34.28 The closing cor. of Tps. 32 N., Rs. 3 and 4 W., NM Prin. Mer., New Mexico, and the NW. corner of the Jicarilla Apache Indian Reservation, bears North, 1.5 lks. dist.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

38.34 The Carpenter 102nd Mi. Cor. bears North, 12.14 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove the monument and obliterate the marks on the four bearing trees.

42.00 Crest of ridge, bears N. 70° W. and S. 70° E.; thence over gently rolling land.

hains	THE PERKINS LINE, 229TH MILE
43.29	The closing cor. of the center line, sec. 20, Colorado; an iron post, 1 in. diam., firmly set; with brass cap marked and witnessed as described in the official record.
51.00	Leave gently rolling land; descend 299 ft. over SW. slope; ridge bears N. 20 W.
63.17	The closing cor. of the W. 1/16 line, sec. 20, Colorado, bears South, 1.5 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.
74.81	Perkins' witness corner to the 229th Mi. Cor.; an iron post, 3 ins. diam., 14 ins. above ground, firmly set in ground and mound of stone, with brass cap marked and witnessed as described in the official record.
	Around the post
	Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 228 + 74.81 Chs., 1868-1925, and build a mound of stone around the monument;
	from which
	A cedar, 10 ins. diam., bears S. 44 W., 18 lks. dist., mkd. as recorded.
	A pinon, 8 ins. diam., bears N. 1¼ W., 30 lks. dist., mkd. as recorded.
	Thence N. 89° 52' W., continuing on the reestablishment of the 229th mile.
	Descend 106 ft. over NW. slope, through timber and undergrowth.
3.81	Recorded distance; the 229th Mi. Cor. was not established by Perkins; point falls near bottom of steep small canon; impracticable to establish corner.
	Land, broken mountainous.
	Soil, sandy and stony clay; 3rd rate.
	Timber, pine, cedar, and pinon; undergrowth, oak brush.

THE PERKINS LINE, 230TH MILE

REESTABLISHMENT

Thence from the point for the 229th Mi. Cor., N. 89° 59' W., on a reestablishment of the 230th mile.

Descend 23 ft. over NW. slope, through timber and undergrowth.

Chains	THE PERKINS LINE, 230TH MILE
0.70	Draw in small canon, course S. 40° W.; ascend 39 ft. over SE. slope
4.16	The closing cor. of secs. 19 and 20, T. 32 N., R. 3 W., NM Prin. Mer., Colorado, bears North, 5 lks. dist.; an iron post, 2 ins. diam. firmly set, with brass cap marked and witnessed as described in the official record.
4.80	Crest of small spur, slopes S.; descend 27 ft. over W. slope.
8.60	Foot of descent; ascend 18 ft. over steep E. slope.
9.35	Top of ascent; descend 267 ft. over W. slope.
23.54	The Carpenter 101.2 Mi. Cor. bears North, 12.00 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.
23.92	The closing cor. of the E. 1/16 line, sec. 19, Colorado, bears North 5 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.
25.85	Draw, course N. 20° W.
28.40	Foot of descent; ascend 109 ft. over NE. slope.
35.03	The closing cor. of secs. 11 and 12, T. 32 N., R. 4 W., NM Prin. Mer., New Mexico; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.
42.70	Crest of spur, slopes N.; descend 183 ft. over NW. slope.
43.94	The closing cor. of the center line, sec. 19, Colorado, bears North 3.5 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.
55.85	Draw, course N. 50° W., about 1.5 chs. to main draw.
63.73	The closing cor. of the W. 1/16 line, sec. 19, Colorado, bears South 2 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.
65.80	Foot of descent; ascend 94 ft. over NE. slope.
78.71	Perkins' 230th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked as described in the official record.
	Around the post
	Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner

Chains

THE PERKINS LINE, 230TH MILE

No. 230, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 8 ins. diam., bears N. 20° E., 47 lks. dist., mkd. as recorded.

A pinon, 6 ins. diam., bears S. 76° 40′ E., 97 lks. dist., mkd. as recorded.

A pinon, 6 ins. diam., bears S. 23½° W., 41 lks. dist., mkd. as recorded.

A pinon, 10 ins. diam., bears N. 10¾° W., 55 lks. dist., mkd. as recorded.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pinon, cedar, and juniper; undergrowth, oak brush.

THE PERKINS LINE, 231ST MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

1.50 Altitude observation on the sun for azimuth, September 27, 1932.

3.73 N. 0.8 lks. to the parallel; thence the 231st Mi. Cor. bears S. 6.6 lks. dist.; on this determination the true line bears S. 89° 57′ W.

REESTABLISHMENT

Thence from the 230th Mi. Cor. S. 89° 57′ W., on a reestablishment of the 231st mile.

Ascend 202 ft. over steep NE. and SE. slopes, through timber and undergrowth.

4.75 The closing cor. of Tps. 32 N., Rs. 3 and 4 W., NM Prin. Mer., Colorado, bears North, 1.5 lks. dist.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

5.65 Crest of spur ridge, bears N. 55° W. and S. 55° E.; slope changes to SE.

Chains THE PERKINS LINE, 231ST MILE

11.50 Construct a concrete monument, in a form 8x14x36 ins., set 21 ins. in the ground, with tablet seated in the top marked Mile Corner No. 230 + 11.50 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 5 ins. diam., bears S. 44½° W., 71 lks. dist., mkd. WP NM BT.

A pinon, 5 ins. diam., bears N. 33¾° W., 22 lks. dist., mkd. WP COLO BT.

Monument stands 9 lks. N. of the crest of a conical hill; descend 294 ft. over NW. slope.

16.56 The closing cor. of the W. 1/16 line, sec. 11, New Mexico, bears North, 5 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

24.79 The closing cor. of the E. 1/16 line, sec. 24, Colorado, bears North 3 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

25.40 Draw, course N. 10° E.; ascend 56 ft. over NE. slope.

29.80 Top of ascent; descend 180 ft. along a N. slope.

36.45 The closing cor. of secs. 10 and 11, T. 32 N., R. 4 W., NM Prin. Mer., New Mexico, bears North, 4 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

41.38 The Carpenter 100th Mi. Cor. bears North, 11.82 chs. dist.; an iron post, firmly set in ground and mound of earth; I remove the monument and obliterate the marks on the three remaining bearing trees.

44.86 The closing cor. of the center line, sec. 24, Colorado, bears North 2 lks. dist.; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

46.00 Construct a concrete monument, in a form 16x24x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 230 + 46 Chs., 1868-1925, and build a mound of stone around the monument.

47.40 Foot of steep descent; enter the San Juan River valley, bears N. 55° E. and S. 55° W.; thence over gently rolling bottom land

Chains

THE PERKINS LINE, 231ST MILE

53.50 Carracas Creek, course N.

56.40 South end of a horseshoe bend in Carracas Creek.

64.95 The closing cor. of the W. 1/16 line, sec. 24, Colorado, bears North, 2 lks. dist.: an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

66.70 Wagon road, bears NW. and SE.

67.70 Top of a bank, 5 ft. high; enter low land; subject to overflow.

78.73 Perkins' 231st Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 231, 1868-1925, and build a mound of stone around the monument.

Land, broken mountainous and valley.

Soil, sandy and stony clay and gumbo; 1st and 3rd rate.

Timber, cottonwood, pinon, and cedar; undergrowth, willows, oak and sage brush.

THE PERKINS LINE, 232ND MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

4.81 Altitude observation on the sun for azimuth, September 28, 1932.

8.78 N. 0.8 lks. to the parallel; thence the 232nd Mi. Cor. bears N. 2.3 lks. dist.; on this determination the true line bears N. 89° 59′ W.

REESTABLISHMENT

Thence from the 231st Mi. Cor. N. 89° 59′ W., on a reestablishment of the 232nd mile.

Descend 7 ft. over low land of river bottom, through timber and undergrowth.

Chains THE PERKINS LINE, 232ND MILE

6.24 The closing cor. of secs. 23 and 24, T. 32 N., R. 4 W., NM Prin. Mer., Colorado, bears North, 1.5 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

7.90 Left cut bank of the San Juan River, 4 ft. high, bears N. 60° E. and S. 60° W.; thence down river bed, stream about 2.50 chs. N., left bank curves S., about 4 chs. dist.

21.50 Ascend 27 ft. over river bank and bottom.

21.80 Top of left cut bank of the river, 20 ft. high, bears N. 20° W. and S. 20° E.

26.15 The closing cor. of the E. 1/16 line, sec. 23, Colorado; an iron post 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record; thence over level land.

28.40 SW. cor. of an abandoned adobe house, 30x15 ft., bears North, 2.1 chs. dist.

33.62 The SW. cor. of a graveyard, 1.20 chs. sq., bears South, 1.67 chs. dist.

34.35 The point for the Carpenter 99.103 Mi. Cor. bears North, 11.7 chs. dist.; point falls in the present bed of the San Juan River I obliterate the marks on the remaining bearing tree,

35.50 Draw, course N. 30° W.

37.84 The closing cor. of secs. 9 and 10, T. 32 N., R. 4 W., NM Prin. Mer., New Mexico, bears South, 4.5 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record; thence descend 41 ft. over bottom land.

41.35 The SE. cor. of Pedro Sandoval's house, 30x25 ft., bears South, 1 lks. dist.

42.10 Top of bank, 10 ft. high, bears N. 25° E. and S. 25° W.; enter low land; subject to overflow; enter field.

49.20 Leave field; thence over very low land.

55.60 Left cut bank of the San Juan River, bears N. 30° E. and S. 30° W. thence in river bed.

64.00 E. edge of water, course S.

Chains

THE PERKINS LINE, 232ND MILE

65.05 The right bank of the river, 8 ft. high, and W. edge of water; thence descend 4 ft. over bottom land.

78.78 Perkins' 232nd Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record; except the SW. bearing tree is gone.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground, with tablet seated in the top marked Mile Corner No. 232, 1868-1925, and build a mound of stone around the monument;

from which

A cottonwood, 8 ins. diam., bears N. 44° W., 95 lks. dist., mkd. as recorded.

Land, gently rolling bottom.

Soil, gumbo and silt; 1st and 2nd rate.

Timber, cottonwood and willows; undergrowth, young timber, oak and sage brush.

THE PERKINS LINE, 233RD MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

0.18 Altitude observation on the sun for azimuth, September 29, 1932.

3.82 N. 0.8 lks. to the parallel; thence the 233rd Mi. Cor. bears S. 4.2 lks. dist.; on this determination the true line bears S. 89° 58′ W.

REESTABLISHMENT

Thence from the 232nd Mi. Cor. S. 89° 58′ W., on a reestablishment of the 233rd mile.

Over level bottom land, through timber and undergrowth.

7.25 The closing cor. of secs. 22 and 23, T. 32 N., R. 4 W., NM Prin. Mer., Colorado, bears North, 1 lk. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

Chains THE PERKINS LINE, 233RD MILE

11.50 Right bank of the San Juan River, 2 ft. high, bears NW. and SE descend 7 ft. into bed of river.

13.20 E. edge of water, course NW.

18.10 W. edge of water.

18.50 Left bank of river, 3 ft. high, bears N. 55° W. and S. 55° E.; ascen 169 ft. over gently rolling bottom land and a NE. slope.

27.35 The closing cor. of the E. 1/16 line, sec. 22, Colorado, bears North 3.5 lks. dist.; an iron post, 1 in. diam., firmly set, with brass ca marked and witnessed as described in the official record.

30.50 Leave the San Juan River valley, bears N. 20° W. and S. 20° E ascend a broken NE. slope, through scattering cedar and pinon

33.00 Construct a concrete monument, in a form 8x14x36 ins., set 21 in in the ground, with tablet seated in the top marked Mile Corn No. 232 + 33 Chs., 1868-1925, and build a mound of sto around the monument;
from which
The NE. cor. of Roque Gallago's house, 57x20 ft., bears S. 9¼° W., 1.15 chs. dist.

38.84 The closing cor. of secs. 8 and 9, T. 32 N., R. 4 W., NM Prin. Me New Mexico, bears North, 2.5 lks. dist.; an iron post, 2 ins. diar firmly set, with brass cap marked and witnessed as described the official record.

39.80 Draw, course N.

43.81 North, 10.94 chs. dist., left bank of the San Juan River, bea N. 70° W. and S. 70° E.; point for the Carpenter 98th Mi. Co falls in the river; the post was found lying on the bank; I remo this monument.

47.45 The closing cor. of the center line, sec. 22, Colorado, bears Nort 2 lks. dist.; an iron post, 1 in. diam., firmly set, with brass ca marked and witnessed as described in the official record.

51.30 Top of ascent; descend 64 ft. over NW. slope.

56.50 Draw, course N. 30° E.; ascend 93 ft. over NE. slope.

60.30 Crest of small spur, slopes N. 15° W.; descend 80 ft. along a broke N. slope.

hains

THE PERKINS LINE, 233RD MILE

62.80 Draw, course N.

65.00 Crest of small spur, slopes N. 15° W.

67.41 The closing cor. of the W. 1/16 line, sec. 22, Colorado: an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

73.00 Draw, course N. 20° E.; ascend 135 ft. over SE. slope.

78.82 Perkins' 233rd Mi. Cor.: an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 18 ins. in the ground to bedrock, with tablet seated in the top marked Mile Corner No. 233, 1868-1925, and build a mound of stone around the monument;

from which

A yellow pine, 12 ins. diam., bears N. 31¾° E., 131 lks. dist., mkd. as recorded.

A cedar, 10 ins. diam., bears S. 45½° E., 61 lks. dist., mkd. as recorded.

Land, level bottom and broken mountainous.

Soil, sandy and stony silt, gumbo, and clay; 1st and 3rd rate.

Timber, cottonwood, pine, cedar, and pinon; undergrowth, young timber, willows, and oak brush.

THE PERKINS LINE, 234TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

2.76 Altitude observation on the sun for azimuth, September 30, 1932.

8.80 N. 0.8 lks. to the parallel; thence the 234th Mi. Cor. bears S. 10.3 lks. dist.; on this determination the true line bears S. 89° 56' W.

REESTABLISHMENT

Thence from the 233rd Mi. Cor. S. 89° 56' W., on a reestablishment of the 234th mile.

Chains THE PERKINS LINE, 234TH MILE

Ascend 440 ft. over broken NE. slope, through timber and unde growth.

8.70 The closing cor. of secs 21 and 22, T. 32 N., R. 4 W., NM Prin Mer., Colorado, bears North, 2.5 lks. dist.; an iron post, 2 ins diam., firmly set, with brass cap marked and witnessed as de scribed in the official record.

39.88 The closing cor. of secs. 7 and 8, T. 32 N., R. 4 W., NM Prin. Mer New Mexico; an iron post, 2 ins. diam., firmly set, with brass ca marked and witnessed as described in the official record.

41.50 Crest of a small spur, slopes N. 20° W.

42.80 Draw, course N. 10° W.

44.41 The Carpenter 97th Mi. Cor. bears North, 11.51 chs. dist.; an iro post, firmly set in ground and mound of stone; I remove th monument and obliterate the marks on the four bearing trees.

48.77 The closing cor. of the center line, sec. 21, Colorado; an iron pos 1 in. diam., firmly set, with brass cap marked and witnessed a described in the official record.

53.20 Crest of spur, slopes N. 20° E.; descend 396 ft. over NW. slope.

71.20 Draw in canon, course N. 30° E.; ascend 176 ft. over NE. slope.

78.80 Perkins' 234th Mi. Cor.: an iron post, 3 ins. diam., 16 ins. abo ground, firmly set in ground and mound of stone, with brass ca marked as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 20 in in the ground, with tablet seated in the top marked Mile Corn No. 234, 1868-1925, and build a mound of stone around th monument;

from which

A juniper, 6 ins. diam., bears S. 28° E., 22 lks. dist., mkd. as r corded.

A juniper, 14 ins. diam., bears S. 32° W., 18 lks. dist., mkd. a recorded.

Cross on a sandstone boulder, bears N. 30° 10' W., 15 lks. dist mkd. as recorded.

Land, broken mountainous.

Chains

THE PERKINS LINE, 234TH MILE

Soil, sandy and stony clay; 3rd rate.
Timber, pine, cedar, and pinon; undergrowth, oak brush.

THE PERKINS LINE, 235TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

78.77 N. 0.8 lks. to the parallel; thence the 235th Mi. Cor. bears S. 1.0 lks. dist.; on this determination the true line bears West.

REESTABLISHMENT

Thence from the 234th Mi. Cor. West, on a reestablishment of the 235th mile.

Ascend 321 ft. over NE. and N. slopes, through timber and undergrowth.

10.37 The closing cor. of secs. 20 and 21, T. 32 N., R. 4 W., NM Prin. Mer., Colorado; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

10.70 Crest of spur, slopes N.; thence ascend over gentle N. slope, along top of spur.

17.70 Top of ascent; descend 187 ft. over NW. slope.

28.40 Draw, course N. 10° W.; ascend 153 ft. over NE. slope.

34.11 The Carpenter 96.15 Mi. Cor. bears North, 11.27 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the four bearing trees.

38.62 The closing cor. of Tps. 32 N., Rs. 4 and 5 W., NM Prin. Mer., New Mexico; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

48.00 Top of ascent; descend 179 ft. over N. and NW. slopes.

53.00 Slope changes to NW.

61.50 Draw, course N. 30° E.; ascend 220 ft. over NE. slope.

Chains THE PERKINS LINE, 235TH MILE

77.84 The ¼ cor. of sec. 12, T. 32 N., R. 5 W., NM Prin. Mer., New Mexico; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

78.77 Darling's 235th Mi. Cor., as reestablished by Perkins in 1917; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 20 ins. in the ground, with brass tablet seated in the top marked Mile Corner No. 235, 1868-1925, and build a mound of stone around the monument;

from which

Cross on a sandstone boulder, bears S. 43½ E., 9.5 lks. dist., mkd. as recorded.

A yellow pine, 18 ins. diam., bears S. 70° W., 33 lks. dist., mkd. as recorded.

A yellow pine, 16 ins. diam., bears N. 11° W., 143 lks. dist., mkd. as recorded.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, cedar, and pinon; undergrowth, oak and service brush.

THE PERKINS LINE, 236TH MILE

RETRACEMENT

West, on a retracement of the Perkins boundary, on a transit line describing a tangent.

4.40 Altitude observation on the sun for azimuth, October 1, 1932.

79.59 N. 0.8 lks. to the parallel; thence the 236th Mi. Cor. bears N. 25 lks. dist., altitude observation on the sun for azimuth, October 1, 1932; on this determination the true line bears N. 89° 49′ W.

REESTABLISHMENT

Thence from the 235th Mi. Cor. N. 89° 49′ W., on a reestablishment of the 236th mile.

Descend 127 ft. over gradual N. and NW. slopes, through timber and undergrowth.

Chains

THE PERKINS LINE, 236TH MILE

8.10 Slope changes to NW.

10.00 Slope changes to N.

11.46 The closing cor. of secs. 19 and 20, T. 32 N., R. 4 W., NM Prin. Mer., Colorado, bears South, 3.5 lks. dist.; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

22.50 Foot of descent; ascend 582 ft. over N., E., and SE. slopes.

29.65 Draw, course NE.; slope changes to E.

38.96 The closing cor. of secs. 11 and 12, T. 32 N., R. 5 W., NM Prin. Mer., New Mexico; an iron post, 2 ins. diam., firmly set, with brass cap marked and witnessed as described in the official record.

42.50 Slope changes to SE.

46.37 The Carpenter 95th Mi. Cor. bears North, 10.98 chs. dist.; an iron post, firmly set in ground and mound of stone; I remove this monument and obliterate the marks on the three bearing trees.

48.00 Crest of spur, slopes N. 80° E.; slope changes to gentle E.

53.90 Top of ascent; descend 19 ft. over SW. slope.

61.50 Draw, course S. 60° E.; ascend 77 ft. over general E. slope near draw.

74.70 Same draw, course N. 75° E. from W.; thence up draw.

77.50 Leave draw, course E. from S. 80° W.

79.20 The ¼ cor. of sec. 11, T. 32 N., R. 5 W., NM Prin. Mer., New Mexico; an iron post, 1 in. diam., firmly set, with brass cap marked and witnessed as described in the official record.

79.59 Perkins' 236th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record.

Around the post

Construct a concrete monument, in a form 8x14x36 ins., set 22 ins. in the ground, with tablet seated in the top marked Mile Corner No. 236, 1868-1925, and build a mound of stone around the monument; elevation of tablet, 7520 ft. above sea level.

Land, broken mountainous.

Soil, sandy and stony clay; 3rd rate.

Timber, pine, cedar, and pinon; undergrowth, oak brush.

On September 1, 1947, at the Perkins 240th Mile Corner, the surveyi of the Colorado and New Mexico boundary was resumed, continuing t retracement and reestablishment of the Perkins boundary as decreed i the United States Supreme Court. The surveying was discontinued at t close of the field season in October, 1932, due to lack of funds.

This portion of the boundary survey was executed with a W. and L. Gurley improved Solar Transit, of most modern design. The instrument w in good condition and placed in satisfactory adjustment prior to the beginni of the survey, and was tested and found free from appreciable error. Freque tests were made throughout the survey.

All azimuth determinations were made with the Solar Transit. Indepen ent solar meridians were established at each transit station.

Measurements were made with a narrow steel tape, 5 chains in leng graduated every link for the first 100 links, and thereafter at intervals of links. The tape was tested by comparison with a one chain standard steel t and found correct. Measurements were made on the slope and the verti angles determined with a clinometer in good adjustment: the field notes sh the horizontal equivalents.

THE PERKINS LINE, 237TH MILE

Chains

RETRACEMENT

Beginning at the Perkins 237th Mi. Cor., as identified and here after described, S. 89° 52′ E., on a retracement of the Perk boundary.

79.43 The 236th Mi. Cor. bears N., 1 lk. dist.; on this determination true line bears N. 89° 52′ W.

REESTABLISHMENT

Thence N. 89° 52′ W., on a reestablishment of the 237th mile.

Ascend 165 ft. over mountainous land, through dense yellow and scrub oak timber.

11.86 The closing cor. of T. 32 N., Rgs. 4 and 5 W., NM Prin. Mer., C rado; an iron post, 3 ins. diam., firmly set, marked and witne as described in the official record

39.55 The closing cor. of secs. 10 and 11, T. 32 N., R. 5 W., NM Mer., New Mexico, bears North, 7.5 lks. dist.; marked and nessed as described in the official record.

Chains

THE PERKINS LINE, 237TH MILE

Top of ascent; descend 200 ft. to point for corner.

46.85 The Carpenter 94th Mi. Cor. bears North, 10.77 chs. dist.; an iron post; I remove this monument.

79.43 The Perkins 237th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, with brass cap marked and witnessed as described in the official record; I did not disturb this monument.

THE PERKINS LINE, 238TH MILE

RETRACEMENT

Beginning at the Perkins 238th Mi. Cor., as identified and hereinafter described, S. 89° 52' E., on a retracement of the Perkins boundary.

79.44 The Perkins 237th Mi. Cor. bears S., 5 lks. dist.; on this determination the true line bears N. 89° 50' W.

REESTABLISHMENT

Thence N. 89° 50' W., on a reestablishment of the 238th mile. Ascend gradually, through dense cedar, pinon, and scrub oak.

0.11 The ¼ cor. of sec. 10, T. 32 N., R. 5 W., NM Prin. Mer., New Mexico; an iron post, 1 in. diam., marked and witnessed as described in the official record.

18.80 Top of 143 ft. ascent; begin descent.

39.84 The Carpenter 93.1 Mi. Cor. bears North, 10.28 chs. dist.; an iron post; I remove this monument.

45.75 Bottom of 150 ft. descent; small pond bears S., about 6 chs. dist.; begin ascent of 150 ft.

46.00 Set the Carpenter 93.1 Mi. Cor.; an iron pipe, 3 ins. diam., 36 ins. long, 24 ins. in the ground. Obliterate the Carpenter marks from the cap, leaving COLO on N., NM on S., in raised letters, and remark the cap with D A R below COLO on N., 237 M + 46.00 CHS. in center, 1868 on W., and 1925 on E.;

from which

A cedar, 6 ins. diam., bears S. 55½° E., 91 lks. dist., mkd. WP NM BT.

Chains THE PERKINS LINE, 238TH MILE

A yellow pine, 18 ins. diam., bears N. 17 E., 32 lks. dist., mkd WP COLO BT.

65.30 U. S. Coast and Geodetic Survey Station Arboles, bears North, 3[illegible] lks. dist., a standard U.S.C. and G.S./tablet, marked ARBOLES 1936. This is the highest point of the mesa; descend 125 ft. to corner.

65.35 Set tablet in solid rock marked Mile Corner No. 237 + 65.35 Chs. 1868-1925.

79.44 The Perkins 238th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, firmly set, with brass cap marked and witnessed as described in the official record; I did not disturb this monument.

C O L O R A D O

ARCHULETA COUNTY

SOUTHERN UTE INDIAN RESERVATION

CARSON NATIONAL FOREST

RIO ARRIBA COUNTY

N E W M E X I C O

T.32 N., R.5 W.

T.32 N., R.4 W.

N 89° 50' W 79.44

N 89° 50' W 79.43

N 89° 49' W 79.59

WEST 78.77

S 89° 56' W 78.80

S 89° 58' W 78.82

N 89

+65.35 U.S.C. & G.S. "ARBOLES"

+46.00

+33.00

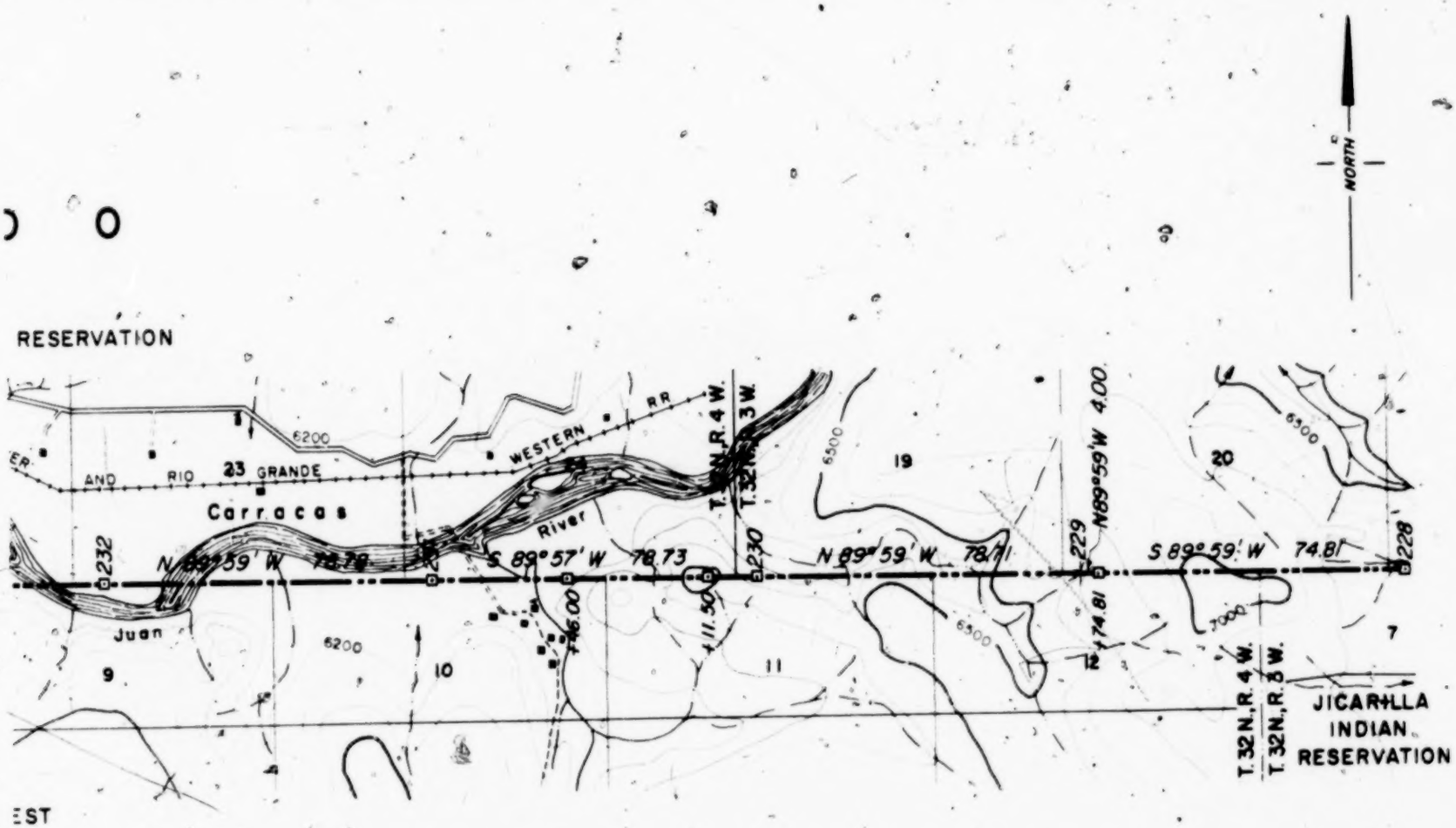
DENVER AND RIO

Juan

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D. Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph B. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 238

to

MILE CORNER No. 247

The Perkins Line, 239th Mile

Chains

RETRACEMENT

Beginning at the 240th Mi. Cor., as identified and hereinafter described,

S. 89° 52′ E., on a retracement of the Perkins boundary.

77.00 The Perkins witness corner to the 239th Mi. Cor. bears N., 1 lk. dist.; on this determination the true line bears N. 89° 52′ W.; thence S. 89° 52′ E., continuing with new measurement, on a retracement of the Perkins boundary.

2.40 Point for the 239th Mi. Cor.; not established by Perkins.

81.87 The Perkins 238th Mi. Cor. bears N., 1 lk. dist.; on this determination the true line bears N. 89° 52′ W.

REESTABLISHMENT

Thence N. 89° 52′ W., on a reestablishment of the 239th mile.

Ascend gradually through dense timber and undergrowth.

0.63 The ¼ cor. of sec. 9, T. 32 N., R. 5 W., NM Prin. Mer., New Mexico; an iron pipe, 1 in. diam., marked and witnessed as described in the official record.

12.20 W. rim of mesa, bears NE. and SW.

Abrupt descent of approximately 1000 ft. over rough broken land with dry washes draining N.

35.99 The Carpenter-92nd Mi. Cor. bears North, 9.72 chs. dist.; an iron post; I remove this monument.

Begin ascent of approximately 500 ft. to point for corner.

79.47 Point for 239th Mi. Cor.; Perkins did not establish a monument impractical to construct a monument at this point.

The Perkins Line, 240th Mile

REESTABLISHMENT

Thence from the point for the 239th Mi. Cor. N. 89° 52′ W., on a reestablishment of the Perkins 240th mile.

Descend 75 ft. over rough and broken land, through dense timber and undergrowth.

Chains

THE PERKINS LINE, 240TH MILE

2.40 The Perkins witness corner to the 239th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, with brass cap marked and witnessed as described in the official record; I did not disturb this monument.

19.52 Narrow spur, slopes N.; top of ascent; begin descent of 740 ft. over rough and broken land, through dense timber and undergrowth.

43.24 The Carpenter 91.109 Mi. Cor. bears North, 9.07 chs. dist.; an iron pipe; I remove this monument.

78.22 Bottom of descent; ascend 13 ft. to corner.

79.40 The Perkins 240th Mi. Cor.; an iron post, 3 ins. diam., 12 ins. above ground, with brass cap marked and witnessed as described in the official record; I did not disturb this monument.

THE PERKINS LINE, 241ST MILE

RETRACEMENT

N. 89° 52′ W., on a retracement of the Perkins boundary.

79.43 The 241st Mi. Cor. was not established by Perkins.

81.03 Intersect the Perkins witness corner to the 241st Mi. Cor.; on this determination the true line bears N. 89° 52′ W.

Thence N. 89° 52′ W., continuing with new measurement, on a retracement of the Perkins boundary.

21.56 Intersect Darling's Astronomical Monument No. 8; on this determination the true line bears N. 89° 52′ W.

REESTABLISHMENT

Thence from the 240th Mi. Cor. N. 89° 52′ W., on a reestablishment of the 241st mile.

Descend gradually over nearly level valley land through sage brush, along S. side of wire fence.

11.00 Wire fence turns N.

11.14 The closing cor. of secs. 20 and 21, T. 32 N., R. 5 W., NM Prin. Mer., Colorado; an iron pipe, 3 ins. diam., marked and witnessed as described in the official record.

Chains THE PERKINS LINE, 241ST MILE

18.00 Construct a concrete monument, in a form 16x24x36 ins., set 24 in. in the ground, with tablet seated in the top marked Mile Corner No. 240 + 18.00 Chs., 1868-1925.
No accessories available.

18.60 Road, from Arboles, Colorado, to Rosa, New Mexico, bears NE. and SW.

22.14 Wire fence, bears N. and S.

22.70 House, bears S., 1.95 chs. dist.

38.60 S. wall of adobe house, bears N., 15 lks. dist.

41.70 Wire fence, bears N., S., and W. along line.

47.26 North, 8.86 chs. dist.; computed position for Carpenter's 90th Mi. Cor.; made careful search and failed to find any evidence of corner; point falls in an alfalfa field.

51.40 The ¼ cor. of sec. 20, T. 32 N., R. 5 W., NM Prin. Mer., Colorado; an iron post, 1 in. diam., marked and witnessed as described in the official record.

67.00 Irrigation ditch, course S.

70.60 The W. 1/16 cor. of sec. 20, T. 32 N., R. 5 W., NM Prin. Mer., Colorado; an iron post, 1 in. diam., marked and described as in the official record.

73.60 End of E. and W. fence along line.

73.90 Top left bank of San Juan River, 10 ft. high, bears N. 20° E. and S. 20° W.

74.30 Edge of water of San Juan River, course S. 20° W.

77.43 Top right bank of San Juan River; begin ascent of 115 ft.

79.43 Point for the 241st Mi. Cor.: Perkins did not establish a monument as it is impractical to construct a monument at this point.

THE PERKINS LINE, 242ND MILE

REESTABLISHMENT

Thence from the point for the 241st Mi. Cor. N. 89° 52′ W., on a reestablishment of the 242nd mile.

Chains THE PERKINS LINE, 242ND MILE

Ascend over rolling mesa, through scattering cedar timber and sage brush undergrowth.

1.60 The Perkins witness corner to the 241st Mi. Cor.: an iron pipe, 3 ins. diam., 12 ins. above ground, marked and witnessed as described in the official record; I did not disturb this monument

Descend 35 ft. to ravine.

1.90 Ravine, course SW.: ascend 35 ft. to top.

3.40 W. edge of ravine; thence over rolling mesa.

8.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 241 + 8.00 Chs., 1868-1925; elevation of tablet is 6109.845 ft. above sea level.

12.40 The closing cor. of secs. 19 and 20, T. 32 N., R. 5 W., NM Prin. Mer., Colorado, bears North, 1.5 lks. dist., an iron post, 2 ins. diam., marked and witnessed as described in the official record.

13.90 W. edge of mesa; begin descent.

14.50 Ravine, course NW.

16.70 Same ravine, course SW.

21.56 Darling's Astronomical Monument No. 8: a granite stone, 10x11x18 ins. above ground, top leaning to south, marks illegible.

Reset the original stone, in a large mound of stone and concrete, with tablet seated in the top marked Mile Corner No. 241 + 21.56 Chs., 1868-1925.

In October, 1932, the field work for the season, under the direction of Arthur D. Kidder, Boundary Commissioner, of retracing and reestablishing the boundary between Colorado and New Mexico was concluded at Perkins' 236th Mile Corner. Due to lack of funds, the field work was not resumed until 1947, at which time the retracing and reestablishing of the Perkins boundary was completed.

The United States Supreme Court in its Decree, dated April 13, 1925 (268 U. S. 108), directed that the line surveyed and marked in 1917, by Wm. C. Perkins, U. S. Surveyor, as a restoration of the Darling boundary between the 203rd Mile Corner and Astronomical Monument No. 8, "Shall

be taken and deemed to be the true location of the portion of the Darling line thus restored."

West of the Darling Astronomical Monument No. 8, as reconstructed in 1947 by Arthur D. Kidder, the Darling line as surveyed and marked in 1868 was to be restored as the boundary between Colorado and New Mexico.

COLORADO AND NEW MEXICO BOUNDARY

The Darling Line, 242nd Mile

Chains

RETRACEMENT

From Darling's Astronomical Monument No. 8, as reconstructed N. 89° 52′ W., on a retracement of the Darling boundary.

58.42 The 242nd Mi. Cor. has become obliterated.

Thence West, continuing with new measurement, on a retracement of the Darling boundary.

80.00 The 243rd Mi. Cor. has become obliterated.

160.00 The 244th Mi. Cor. has become obliterated.

240.00 The 245th Mi. Cor. has become obliterated.

320.00 The 246th Mi. Cor. has become obliterated.

401.15 The 247th Mi. Cor. bears S., 1.076 chs. dist.; on this determination the true line bears S. 89° 52′ W.

REESTABLISHMENT

Thence from Darling's Astronomical Monument No. 8, as reconstructed, S. 89° 52′ W., on a reestablishment of the 242nd mile.

Descend 12 ft. over rolling land, through scattering cedar timber and sage brush undergrowth.

0.90 Road, bears N. and S.

3.30 Stream, 5 lks. wide, 10 ft. high, cut bank on E., course SE.; begin ascent.

6.20 Hillside wash, 10 lks. wide.

8.37 Road, on dugway, bears NE. and SW.

9.40 Top of 87 ft. ascent; thence over mesa.

10.30 The E. 1/16 cor. of sec. 19, T. 32 N., R. 5 W., NM Prin. Mer. Colorado, bears North, 5.5 lks. dist.; an iron post, 1 in. diam.

Chains

THE DARLING LINE, 242ND MILE

22 ins. above ground, marked and witnessed as described in the official record.

19.00 Ravine, course SE.

20.00 Road, bears NW. around head of draw.

21.50 Irrigation ditch, bears S., 4 lks. dist.

26.25 The Carpenter 89th Mi. Cor. bears North, 8.78 chs. dist.; an iron post; I remove this monument.

31.24 Top of 95 ft. ascent on mesa top; thence over nearly level land to point for corner.

Leave cedar timber; enter sage brush.

58.46 The proportional point: Darling's 242nd Mi. Cor. has become obliterated.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 242, 1868-1925.

No accessories available.

Monument stands in sage brush, 60 lks. N. of an E. and W. road, 84 lks. N. of an E. and W. wire fence.

THE DARLING LINE, 243RD MILE

REESTABLISHMENT

S. 89° 52′ W., on a reestablishment of the 243rd mile.

4.65 South, 43 lks. dist.; road from S. turning to W.

11.90 Same road, bears N.

12.18 South, 37 lks. dist.; a granite stone, 12x6x4 ins. above ground, mkd. with 6 grooves on 3 faces and 3 grooves on remaining face, at fence corner; fence bears N. and W. from corner.

23.55 W. rim of mesa, bears N. and S.; begin descent.

26.65 Bottom of 60 ft. descent; thence over rolling valley land.

47.81 North, 8.76 chs. dist.; after careful search failed to find any evidence of the Carpenter 88th Mi. Cor.; point falls in old cultivated field.

65.10 South, 25 lks. dist.; a sandstone, 16x2x10 ins. above ground, mkd. with 6 grooves on S., CC on N. face.

Chains

THE DARLING LINE, 243RD MILE

72.95 Creek, 30 lks. wide, 16 ins. deep, course S.; bottom of descent 80 ft. over valley floor; ascend to point for corner.

79.95 Small overflow from drainage ditch.

80.22 The proportional point; Darling's 243rd Mi. Cor. has become obliterated.

Set the Carpenter 89th Mi. Cor.; an iron pipe, 3 ins. diam., 36 in. long, 24 ins. in the ground. Obliterate the Carpenter marks from the cap, leaving COLO on N., NM on S., in raised letters, and remark the cap D A R below COLO on N., 243 M in center, 18[illegible] on W., and 1925 on E.

No accessories available.

THE DARLING LINE, 244TH MILE

REESTABLISHMENT

S. 89° 52' W., on a reestablishment of the 244th mile.

7.50 Top of low ridge.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 243 + 7.50 Chs., 1868-1925;

from which

NE. corner of house, bears S. 30° W., 2.40 chs. dist.

Monument stands 33 lks. N. of an E. and W. wire fence; beg. descent.

11.97 South, 3 lks. dist.; a sandstone, 10x3x8 ins. above ground, firmly set, mkd. with 1 groove on E., and 6 grooves on W. face.

Monument stands in a cornfield.

13.85 Farm road, bears NW. and SE.

35.50 Creek, 10 lks. wide, banks 2 ft. high, course S.; cluster of cotton wood trees bears N., about 4 chs. dist.; bottom of 50 ft. descent, ascend 30 ft. to top.

42.75 Road, bears NE. turning to W. along line.

47.59 The Carpenter 87th Mi. Cor. bears North, 8.72 chs. dist.: an iron pipe: I remove this monument.

chains

The Darling Line, 244th Mile

53.35 Road fork; roads bear W. and NE.
Top of ascent; descend 55 ft. to point for corner.

65.35 Road, bears N. and S., intersect E. and W. road N., 7 lks. dist.

80.22 The proportional point; Darling's 244th Mi. Cor. has become obliterated.
Construct a concrete monument, in a form 8x14x36 ins., set 30 ins. in the ground, with tablet seated in the top marked Mile Corner No. 244, 1868-1925.
No accessories available.
Darling's bearings to reference points at this station checked satisfactorily.

The Darling Line, 245th Mile

REESTABLISHMENT

S. 89° 52' W., on a reestablishment of the 245th mile.
Ascend 100 ft. over cultivated valley land.

23.60 Irrigation ditch, 6 lks. wide, course S.

35.00 Ditch, bears NE. and SW.

41.40 Draw, 20 lks. wide, course S.

46.51 North, 8.75 chs. dist.; after careful search failed to find any evidence of the Carpenter 86th Mi. Cor.

49.90 Lone cottonwood, bears N., 62 lks. dist.

80.22 The proportional point; Darling's 245th Mi. Cor. destroyed. (Carpenter 86th Mi.).
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 245, 1868-1925.
No accessories available.
Monument stands in pasture, 30 lks. N. of E. and W. wire fence.

The Darling Line, 246th Mile

REESTABLISHMENT

S. 89° 52' W., on a reestablishment of the 246th mile.
Ascend gradually over cultivated rolling valley land.

Chains THE DARLING LINE, 246TH MILE

5.20 Ditch, 4 lks. wide, course S. from NW.

11.10 Wire fence, bears N. and S.

11.54 Road, bears N., S. turning to W., 17 lks. dist.

12.10 Construct a concrete monument, in a form 18x24x36 ins., set 24 in. in the ground, with tablet seated in the top marked Mile Corner No. 245 + 12.10 Chs., 1868-1925;

from which

A cedar, 14 ins. diam., bears S. 31¼° E., 19 lks. dist., mkd. W NM BT.

A pinon, 12 ins. diam., bears N. 55½° W., 15 lks. dist., mkd. W COLO BT.

NW. cor. of a house, bears S. 43° E., approximately 130 lks. dist.

Monument stands 18 lks. N. of an E. and W. wire fence, and 17 lks. W. of a N. and S. wire fence.

21.00 Ditch, 3 lks. wide, course NE.

45.58 The Carpenter 85th Mi. Cor. bears North, 8.60 chs. dist.; an iron post; I remove this monument.

62.60 Creek, 15 lks. wide, course N. 60° E.

72.60 Creek, 5 lks. wide, course N. 60° E.; in dense stand of willows.

80.22 The proportional point; Darling's 246th Mi. Cor. destroyed (Carpenter 85th Mi.).

Set the Carpenter 85th Mi. Cor.; an iron pipe, 3 ins. diam., 36 ins. long, 24 ins. in the ground. Obliterate the Carpenter marks from the cap, leaving COLO on N., NM on S., in raised letters, and remark the cap with D A R below COLO, 246 M in center, 18[illegible] on W., and 1925 on E.;

from which

A cedar, 12 ins. diam., bears N. 76½° W., 79 lks. dist., mkd. COLO 246 M BT.

Monument stands in sage brush, 29 lks. N. of an E. and W. wire fence.

THE DARLING LINE, 247TH MILE

REESTABLISHMENT

S. 89° 52' W., on a reestablishment of the 247th mile.

Ascend over gently rolling valley land, through scattering cedar timber and sage brush undergrowth; some cultivation.

35.10 Ditch, 5 lks. wide, course SE.

38.75 House, bears N., approximately 1 ch. dist.

45.00 Construct a concrete monument, in a form 18x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 246 + 45.00 Chs., 1868-1925;

from which

A cedar, 10 ins. diam., bears N. 38½° W., 72 lks. dist., mkd. WP COLO BT.

A cedar, 14 ins. diam., bears S. 45¼° W., 118 lks. dist., mkd. WP NM BT.

Monument stands 8 lks. N. of E. and W. wire fence.

46.30 Base of mesa, bears N. and S.; top of 50 ft. ascent over valley floor; ascend 250 ft. to top of mesa.

47.74 The Carpenter 84th Mi. Cor. bears North, 8.93 chs. dist.; an iron post; I remove this monument and obliterate the marks on the remaining bearing tree.

53.00 Top rim of mesa, bears N. and S.; ascend 10 ft. over mesa top.

60.22 Darling's 247th Mi. Cor., as restored by Everett H. Kimmell, U. S. Surveyor; a concrete monument, 15x15x5 ins. above ground, with General Land Office tablet seated in the top marked U. S. C. & G. S., MP 247, COLO on N., N. Mex., 1934, 1931 on S. side of triangle in center;

from which

R. M. bears N. 41° 24' E., 1.938 chs. dist., mkd. R. M. No. 1, U. S. C. & G. S., arrow pointing to the Mi. Cor. monument.

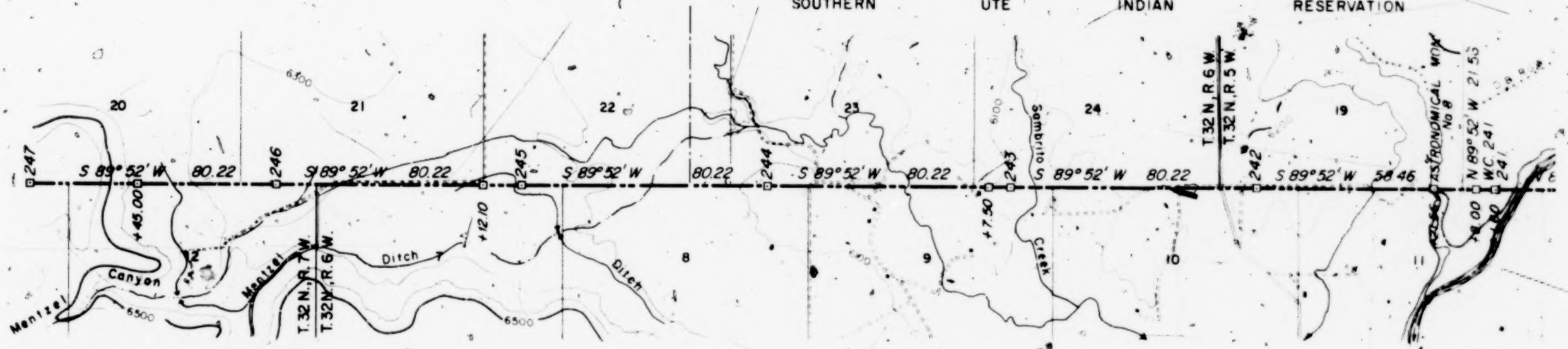
R. M. bears N. 48° 45' W., 1.08 chs. dist., mkd. R. M. No. 2, U. S. C. & G. S., arrow pointing to the Mi. Cor. monument.

I did not disturb these monuments.

COLORADO

LA PLATA COUNTY

SOUTHERN UTE INDIAN RESERVATION



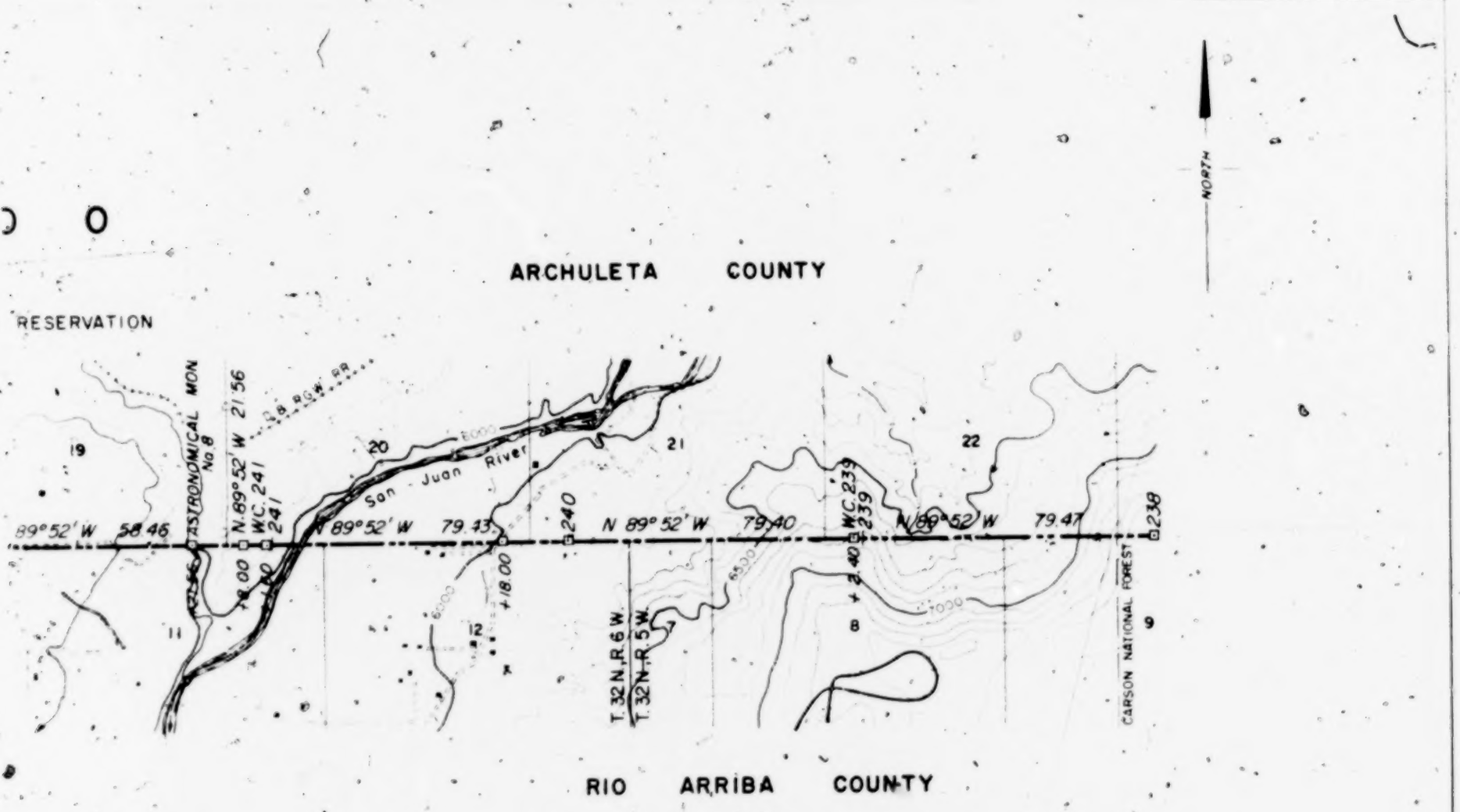
SAN JUAN COUNTY

NEW MEXICO

SCALE

10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

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Joseph B. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 247

to

MILE CORNER No. 253

THE DARLING LINE, 248TH MILE

Chains

RETRACEMENT

S. 89° 52′ W., on a retracement of the Darling boundary.

80.00 The 248th Mi. Cor. has become obliterated.

160.00 The 249th Mi. Cor. has become obliterated.

240.00 The 250th Mi. Cor. has become obliterated.

320.00 The 251st Mi. Cor. has become obliterated.

397.40 The 252nd Mi. Cor. bears N., 46 lks. dist.; on this determinati the true line bears S. 89° 56′ W.

REESTABLISHMENT

Thence from the 247th Mi. Cor. S. 89° 56′ W., on a reestablishmen of the 248th mile.

Over nearly level mesa through dense cedar and pinon timber, sag and buck brush undergrowth.

3.00 W. rim of mesa, bears NE. and SE.

6.70 Ravine, course NE.; bottom of 60 ft. descent; begin 60 ft. ascent

11.90 Top of mesa, bears N. and SE.

12.24 The closing cor. of secs. 19 and 20, T. 32 N., R. 6 W., NM Prin Mer., Colorado, bears South, 7 lks. dist.; a sandstone, 12x4x1 ins., in mound of stone, mkd. with 5 grooves on E., 1 groove on W., and CC on N. face.

14.20 Top of sandstone ledge, bears NE. and SW.

Set tablet in solid rock marked Mile Corner No. 247 + 14.20 Chs 1868-1925;

from which

A cedar, 8 ins. diam., bears N. 78° E., 83 lks. dist., mkd. WP COLO BT.

A pinon, 14 ins. diam., bears S. 3½° W., 80 lks. dist., mkd. WP NM BT.

Build a mound of stone E. of tablet.

Begin descent of 190 ft.

17.40 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins in the ground, with tablet seated in the top marked Mile Corner

hains

THE DARLING LINE, 248TH MILE

No. 247 + 17.40 Chs., 1868-1925;
from which

A cedar, 20 ins. diam., bears N. 56¾° E., 16 lks. dist., mkd. WP COLO BT.

A cedar, 14 ins. diam., bears S. 47¼° E., 13 lks. dist., mkd. WP NM BT.

17.75 Road, in dugway, bears N. and S.
Bottom of steep descent, bears NE. and SW.; leave timber, enter sage brush; descend gradually.

27.40 Arroyo, 30 ft. deep, course NE.

30.80 Same arroyo, 15 ft. deep, course SE. from W.

35.50 Same arroyo, 15 ft. deep, course NE. turning to E.
Ascend 150 ft. over steep rocky slope, through cedar and pinon timber.

44.40 Edge of sandstone rim rock on top of mesa, bears NE. and SW.; ascend 25 ft. gradually over mesa top.

44.75 Set tablet in sandstone ledge, marked Mile Corner No. 247 + 44.75 Chs., 1868-1925;
from which

Twin cedar, 8 ins. diam., bears N. 14¾° E., 53 lks. dist., mkd. WP COLO BT.

A pinon, 12 ins. diam., bears S. 67¾° W., 78 lks. dist., mkd. WP NM BT.

Bufld a mound of stone W. of tablet.

0.96 North, 8.75 chs. dist.; point for the Carpenter 83rd Mi. Cor.: position located from recorded position of the four bearing trees; after careful search, unable to find the post; obliterated the marks on the four bearing trees.

2.46 Dry wash, 15 lks. wide, course S. 60° E.

1.90 Same dry wash, 15 lks. wide, course N. 80° E.

0.50 Leave dense timber, bears NW. and SE.; enter sage brush undergrowth.
Same dry wash; course S. 80° E.

3.50 Wire fence, bears NE. and SW.; NE., 10 lks. dist. to fence corner.
Leave sage brush; enter cultivated land.

Chains

THE DARLING LINE, 248TH MILE

79.48 The proportional point. Darling's 248th Mi. Cor. has become o
erated.

Construct a concrete monument, in a form 6x14x36 ins., set 24
in the ground, with tablet seated in the top marked Mile Co
No. 248. 1868-1925, and build a mound of stone around
monument.

No accessories available.

THE DARLING LINE, 249TH MILE

REESTABLISHMENT

S. 89° 56' W., on a reestablishment of the 249th mile.

Ascend gradually over cultivated land.

6.50 Leave cultivated land; enter scattering cedar and pinon tim
ascend 60 ft. to foot of rocky slope.

29.10 Foot of rocky slope, bears NW. and SE.; ascend 160 ft. over ro
slope.

39.30 Top of ledge on top of ridge, bears N. and S.; thence over ne
level ridge through timber.

39.50 Set tablet in solid ledge, marked Mile Corner No. 248 + 39.50 C
1868-1925;

from which

A cedar, 8 ins. diam., bears N. 27½° W., 36 lks. dist., mkd
COLO BT.

A cedar, 6 ins. diam., bears S. 51° W., 44 lks. dist., mkd. WP
BT.

Build a mound of stone W. of tablet.

48.45 The Carpenter 82nd Mi. Cor. bears North, 8.74 chs. dist.; an
post; I remove this monument and obliterate the marks on
remaining bearing trees.

51.00 W. edge of ridge; begin abrupt descent of 180 ft.

59.50 Wash, 10 lks. wide in bottom of canon, course SW.; ascend 12
over broken land to point for corner.

79.48 The proportional point; Darling's 249th Mi. Cor. has become ob
erated.

The Darling Line, 249th Mile

Set the Carpenter 82nd Mi. Cor., an iron pipe, 3 ins. diam., 36 ins. long, 24 ins. in the ground. Obliterate the Carpenter marks from the cap, leaving COLO on N., NM on S., in raised letters; remark the cap D A R below COLO on N., 249 M in center, 1868 on W 1925 on E.,

from which

Cross, in a large boulder, bears N. 74¼ E., 27.6 lks. dist., mkd BO +.

A cross, in large boulder, bears South, 1 lk. dist.

The 249th Mi. Cor. stands against the N. face of this boulder.

The Darling Line, 250th Mile

REESTABLISHMENT

S. 89° 56' W., on a reestablishment of the 250th mile.

6.60 Perpendicular bluff, bears NE. and SW.

In top of ledge

Set tablet in solid rock, marked Mile Corner No. 249 + 6.60 Chs. 1868-1925;

from which

A pinon, 10 ins. diam., bears N. 27½ W., 34 lks. dist., mkd. W P COLO BT.

A cedar, 14 ins. diam., bears S. 44¾ W., 45 lks. dist., mkd. W P NM BT.

14.80 Top of ridge, bears NE. and SW.

Set tablet in solid ledge, marked Mile Corner No. 249 + 14.80 Chs. 1868-1925.

Build a mound of stone E. of monument.

Top of 110 ft. ascent; begin descent.

22.25 Top of perpendicular ledge, 20 lks. N. of the most westerly point of a high mesa.

Descend 280 ft. over face of ledge.

26.65 Road, bears N. and S.

27.00 Begin abrupt descent.

28.59 The Carpenter 81st Mi. Cor. bears North, 8.86 chs. dist., an iron post; I remove this monument and obliterate the marks on the four bearing trees.

Chains

THE DARLING LINE, 250TH MILE

51.35 Road, bears NE. and SW.

57.25 Bottom of abrupt 300 ft. descent, descend gradually; leave dec. timber, bears NW. and SE.; enter sage brush undergrowth.

74.45 Road, bears NW. and SE.

77.85 Draw, 10 lks. wide, course N. 60 W.; leave sage brush unde growth; enter cultivated land.

79.48 The proportional point; Darling's 250th Mi. Cor. has become obl erated.

Set the Carpenter 81st Mi. Cor.; an iron pipe, 3 ins. diam., 36 i long, 24 ins. in the ground. Obliterate the Carpenter marks fro the cap, leaving COLO on N., NM on S., in raised letters, rema the cap D A R below COLO on N., 250 M in center, 1868 on W 1925 on E.

Monument stands 30 lks. S. of deep arroyo and 2 lks. N. of E. a W. wire fence.

THE DARLING LINE, 251ST MILE

REESTABLISHMENT

S. 89° 56' W., on a reestablishment of the 251st mile.

Descend over cleared valley land.

9.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 i in the ground, with tablet seated in the top marked Mile Cor No. 250 + 9.00 Chs., 1868-1925.

No accessories available.

Monument stands on top of low rise in cleared land, 5 lks. N. of fence line.

13.40 NE. cor. of adobe house, bears S., 65 lks. dist.

22.10 Wash, 20 lks. wide, course N.

26.30 Wire fence, bears S.; leave cleared land, enter scattering small ced and pinon.

40.20 Point of spur.

45.70 Road, bears N. and S.

48.93 The Carpenter 80th Mi. Cor. bears North, 8.93 chs. dist.; an post; I remove this monument.

Chains

THE DARLING LINE, 251ST MILE

.50 Wash, 40 lks. wide, course S.

2.20 Fence cor., bears N., 4 lks. dist.; fences W. and S.

6.10 Brow of mesa, overlook Pine River Valley to the W. and SW. of a Mexican cemetery.

Construct a concrete monument, in a form 16x24x36 ins., 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 250 + 56.10 Chs., 1868-1925; elevation of tablet is 6212.82 ft. above sea level.

Bottom of 65 ft. descent over mesa, abrupt descent of 65 ft. to road.

8.70 Road, bears N. and S., at foot of bluff.

3.00 Left bank of Pine River, 4 ft. deep, 50 lks. wide, course S.

8.00 Top of perpendicular ledge on W. side of Pine River, 80 ft. above left bank.

.50 Top of bluff on W. side of Pine River.

7.48 The proportional point; Darling's 251st Mi. Cor. has become obliterated.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 251, 1868-1925.

Monument stands on top of bluff on W. side of Pine River, in cultivated land.

THE DARLING LINE, 252ND MILE

REESTABLISHMENT

S. 89° 56' W., on a reestablishment of the 252nd mile.

Ascend gradually over cultivated land.

.00 Wire fence, bears N. and S.; enter cedar and pinon timber.

.80 Irrigation ditch, course S.

.00 Road, bears N. and S.

.40 Rocky spur, slopes S.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 251 + 17.40 Chs., 1868-1925;

Chains THE DARLING LINE, 252ND MILE

from which

A forked cedar, 6 ins. diam., bears N. 13¾° E., 89 lks. dist., mkd. WP COLO BT.

A cedar, 8 ins. diam., bears S. 53° E., 62 lks. dist., mkd. WP NM BT.

22.50 Wash, course S. 60° E.

43.00 Enter dense scrub oak and buck brush, bears E. and NW.

51.69 The Carpenter 79th Mi. Cor. bears North, 9.12 chs. dist.; an iron post; I remove this monument and obliterate the marks on the bearing trees.

71.58 The closing cor. of T. 32 N., Rs. 7 and 8 W., NM Prin. Mer., New Mexico, bears South, 5 lks. dist.; a sandstone, 14x6x16 ins. above ground, firmly set in small mound of stone, marked and witnessed as described in the official record.

79.48 Darling's 252nd Mi. Cor.; a sandstone, 12x5x24 ins., lying down with base in mound of stone, mkd. C., NM., 68, 252 M on opposite faces. Found sandstone, 8x6x3 ins., mkd. 252 M deposited in mound of stone.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 252, 1868-1925, and build a mound of stone around the monument. Placed deposit stone in bottom, and surface stone on top of mound.

No other accessories available.

THE DARLING LINE, 253RD MILE

RETRACEMENT

West, on a retracement of the Darling boundary.

79.92 The 253rd Mi. Cor. bears S. 26 lks. dist.; on this determination the true line bears S. 89° 49′ W.

REESTABLISHMENT

Thence from the 252nd Mi. Cor. S. 89° 49′ W., on a reestablishment of the 253rd mile.

THE DARLING LINE, 253RD MILE

Ascend 300 ft. through cedar and pinon timber, and dense oak and service brush.

2.31 A pinon, 18 ins. diam., blazed, on line.

2.73 The Carpenter 78th Mi. Cor. bears North, 8.80 chs. dist.; an iron post; I remove this monument and obliterate the marks on the two bearing trees.

3.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 252 + 69.00 Chs., 1868-1925;

from which

A cedar, 12 ins. diam., bears N. 13½° E., 15 lks. dist., mkd. WP COLO BT.

A pinon, 8 ins. diam., bears S. 22° E., 35 lks. dist., mkd. WP NM BT.

3.18 Road from La Boca, Colorado, to Blanco, New Mexico, bears NE. and S.

3.92 Darling's 253rd Mi. Cor.: a granite stone, 16x12x8 ins. above ground, firmly set, mkd. 253 M on E. face.

In place of stone

Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 253, 1868-1925, and build a mound of stone around the monument;

from which

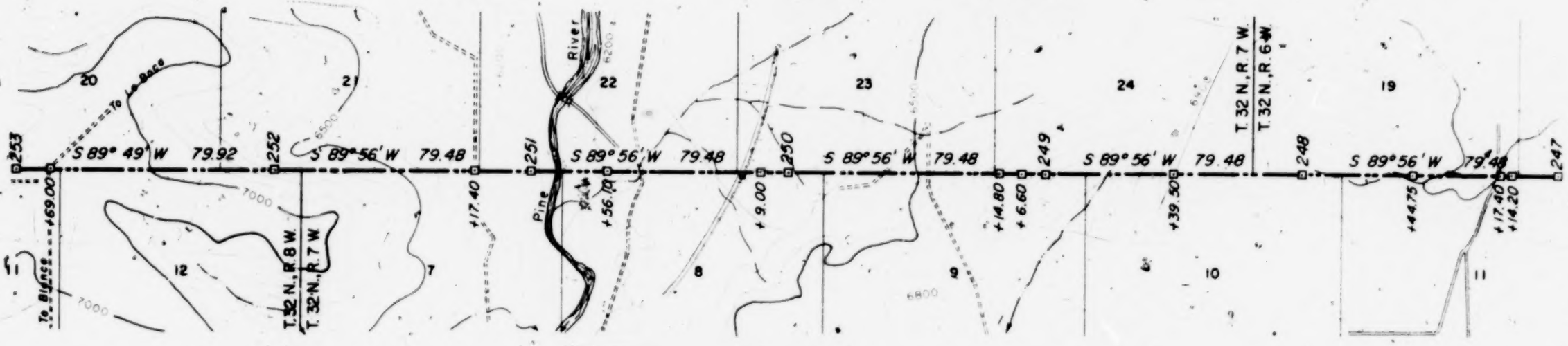
A cedar, 22 ins. diam., bears N. 9° E., 51 lks. dist., mkd. COLO 253 M BT.

A cedar, 18 ins. diam., bears S. 51½° W., 1.02 chs. dist., mkd. NM 253 M BT.

COLORADO

LA PLATA COUNTY

SOUTHERN UTE INDIAN RESERVATION



SAN JUAN COUNTY

NEW MEXICO

SCALE

0 10 20 30 40 80

40 Chains to the inch

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph A. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 253

to

MILE CORNER No. 261

THE DARLING LINE, 254TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary.

80.00 Unable to find the Darling 254th Mi. Cor.

160.00 Unable to find the Darling 255th Mi. Cor.

240.00 The 256th Mi. Cor. has become obliterated.

320.00 The 257th Mi. Cor. has become obliterated.

400.00 The 258th Mi. Cor. has become obliterated.

480.00 The 259th Mi. Cor. has become obliterated.

560.00 Unable to find the Darling 260th Mi. Cor.

639.52 The restored 261st Mi. Cor. bears N., 54 lks. dist.: on this determination the true line bears N. 89° 57′ W.

REESTABLISHMENT

Thence from the 253rd Mi. Cor. N. 89° 57′ W., on a reestablishment of the 254th mile.

Ascend 55 ft. over N. slope through cedar and pinon timber, and dense oak and service brush.

20.75 Top of ascent: descend 100 ft.

49.35 Sandstone ledge, bears N. and S.: begin abrupt descent of 190 ft. to ravine.

50.23 The Carpenter 77.125 Mi. Cor. bears North, 8.28 chs. dist.: an iron post: I remove this monument and obliterate the marks on the four bearing trees.

58.92 Ravine, course N. 30° W., draining to La Boca Canon.

60.11 Bottom of descent: ascend 45 ft.

70.34 Descend 18 ft. to point for corner.

79.94 The proportional point: unable to identify Darling's 254th Mi. Cor.

Set a red brass tube, 3.5 ins. diam.: 36 ins. long, 24 ins. in the ground in a concrete base, with cap marked Mile Corner No. 254 + 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 14 ins. diam., bears S. 66° E., 28 lks. dist., mkd. NM 254 M BT.

Chains

THE DARLING LINE, 254TH MILE

A cedar, 10 ins. diam., bears N. 77¼° W., 11 lks. dist., mkd. COLO 254 M BT.

THE DARLING LINE, 255TH MILE

REESTABLISHMENT

N. 89° 57′ W., on a reestablishment of the 255th mile.

Ascend 46 ft. through cedar and pinon timber, and oak and service brush.

16.64 Drift fence, bears N. and S.

22.74 W. edge of road, bears NW. and SE.

42.30 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground; with tablet seated in the top marked Mile Corner No. 254 + 42.30 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 10 ins. diam., bears S. 16¼° W., 17 lks. dist., mkd. WP NM BT.

A cedar, 6 ins. diam., bears N. 51° W., 17 lks. dist., mkd. WP COLO BT.

Monument stands at W. edge of road, bearing NE. and SW.: begin ascent.

47.31 Top of ascent, bears N. and S.: begin 81 ft. descent.

60.66 The Carpenter 76th Mi. Cor. bears North, 7.91 chs. dist., an iron post; I remove this monument and obliterate the marks on the four bearing trees.

66.35 Sandstone ledge, bears N. and S.

Set a tablet in sandstone ledge, marked Mile Corner No. 254 + 66.35 Chs., 1868-1925;

from which

A cedar, 8 ins. diam., bears S. 7° W., 30 lks. dist., mkd. WP NM BT.

A pinon, 7 ins. diam., bears N. 36½° W., 24 lks. dist., mkd. WP COLO BT.

Raised a mound of stone E. of tablet.

Chains

THE DARLING LINE, 255TH MILE

78.90 Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground in a concrete base, with cap marked Mile Corner No. 25 + 78.90 Chs., 1868-1925, and build a mound of stone around the monument;
from which
An ant hill, bears East, 37 lks. dist.

79.70 Wash, course S. 60° W.

79.94 The proportional point; unable to identify Darling's 255th Mi. Cor. point falls in deep arroyo; I did not reestablish this corner.

THE DARLING LINE, 256TH MILE

REESTABLISHMENT

N. 89° 57′ W., on a reestablishment of the 256th mile.
Over rolling land in narrow valley; descend 17 ft.

14.43 Bottom of descent; ascend 38 ft.

24.00 Top of ascent; descend 80 ft. to creek.

47.75 Fence, bears N. and S.

61.53 The Carpenter 75th Mi. Cor. bears North, 7.67 chs. dist.; an iron post; I remove this monument and obliterate the marks on the two bearing trees.

77.66 Center of dry creek, cut banks, 8 ft. high, course SW.

79.28 Ascend 10 ft. to point for corner.

79.94 The proportional point; Darling's 256th Mi. Cor. destroyed (Carpenter 75th Mi.).
Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground in a concrete base, with cap marked Mile Corner No. 25 1868-1925, and build a mound of stone around the monument.
An old cabin, bears S. 48½° E., approximately 7 chs. dist.

THE DARLING LINE, 257TH MILE

REESTABLISHMENT

N. 89° 57′ W., on a reestablishment of the 257th mile.
Ascend 17 ft. over rolling ground on N. side of narrow valley

Chains

THE DARLING LINE, 257TH MILE

through scattering cedar and pinon timber, patches of dense cedar and pinon.

52.03 Begin 64 ft. descent to ravine.

57.47 The Carpenter 74th Mi. Cor. bears North, 7.51 chs. dist.; an iron post; I remove this monument and obliterate the marks on the three bearing trees.

64.72 Dry ravine, 10 lks. wide, course SW.; ascend 37 ft.

78.01 Top of ascent; descend 13 ft. to point for corner.

79.94 The proportional point; Darling's 257th Mi. Cor. destroyed (Carpenter 74th Mi.).

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 12 ins. in the ground to solid rock in a concrete base, with cap marked Mile Corner No. 257, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 8 ins. diam., bears N. 86 E., 51 lks. dist., mkd. COLO 257 M BT.

A cedar, 10 ins. diam., bears S. 68½ E., 87 lks. dist., mkd. NM 257 M BT.

THE DARLING LINE, 258TH MILE

REESTABLISHMENT

N. 89 57 W., on a reestablishment of the 258th mile.

Descend 199 ft. through dense cedar and pinon timber, and scrub oak.

6.70 Sandstone ledge, 10 ft. high, bears S.; thence descend into Trail Canon.

10.49 Dry bed of Trail Canon Creek, 35 lks. wide, course S.; ascend 313 ft. to top of ridge.

11.84 Road, bears N. and S.

12.00 Set a red brass tube, 3.5 ins. diam., 36 ins. long, in the ground in a concrete base, with cap marked Mile Corner No. 257 + 12.00 Chs., 1868-1925;

Chains THE DARLING LINE, 258TH MILE

from which

A red cedar, 8 ins. diam., bears S. 50° E., 63 lks. dist., mkd. W NM BT.

A red cedar, 14 ins. diam., bears N. 12½° W., 80 lks. dist., mk WP COLO BT.

16.49 Sandstone rim; on W. side of wash, course S.

45.25 Top of ridge, bears NW. and SE.; thence over ridge.

46.90 Begin 180 ft. descent on heavily timbered slope.

56.89 The Carpenter 73rd Mi. Cor. bears North, 7.28 chs. dist.; an i post; I remove this monument and obliterate the marks on t two bearing trees.

65.84 Small wash, course S.

79.94 The proportional point; Darling's 258th Mi. Cor. destroyed (C penter 73rd Mi.).

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 12 ins. in t ground with base drilled 6 ins. into sandstone, with cap mark Mile Corner No. 258, 1868-1925, and build a large mound stone around the monument;

from which

A cedar, 10 ins. diam., bears N. 47° E., 15 lks. dist., mkd. COL 258 M BT.

A cedar, 16 ins. diam., bears S. 42½° W., 77 lks. dist., mkd. N 258 M BT.

THE DARLING LINE, 259TH MILE

REESTABLISHMENT

N. 89° 57′ W., on a reestablishment of the 259th mile.

Descend 14 ft. through cedar and pinon timber, and scrub oak.

1.19 Sandstone rim, 8 ft. high, bears NE. and SW.; descend 100 ft. canon.

3.10 Dry creek bed, in Beef Canon, course S. 30° E.; ascend 222 ft.

7.55 Sandstone rim; ascend over NE. slope, through scattering cedar a pinon, dense oak, service and sage brush undergrowth.

38.25 Begin 53 ft. descent to creek.

ains

THE DARLING LINE, 259TH MILE

48.85 Dry creek, 20 lks. wide, with 4 ft. cut banks, sandy bottom, course NE.

Ascend 179 ft.

56.88 The Carpenter 72nd Mi. Cor. bears North, 7.08 chs. dist.; an iron post; I remove this monument and obliterate the marks on the four bearing trees.

77.45 Top of ascent; descend 17 ft. to point for corner.

79.94 The proportional point; Darling's 259th Mi. Cor. destroyed (Carpenter 72nd Mi.).

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 20 ins. in the ground to solid rock, with cap marked Mile Corner No. 259. 1868-1925, and build a large mound of stone around the monument;

from which

A cedar, 12 ins. diam., bears N. 34½ E., 4 lks. dist., mkd. COLO 259 M BT.

A cedar, 10 ins. diam., bears S. 34 W., 15 lks. dist., mkd. NM 259 M BT.

THE DARLING LINE, 260TH MILE

REESTABLISHMENT

N. 89° 57′ W., on a reestablishment of the 260th mile.

Ascend 160 ft. gradually over rolling ground, through dense cedar and pinon timber, and sage brush undergrowth.

56.46 The Carpenter 71st Mi. Cor. bears North, 6.92 chs. dist.; an iron post; I remove this monument and obliterate the marks on the remaining bearing tree.

79.94 The proportional point; unable to identify Darling's 260th Mi. Cor.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 260, 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 20 ins. diam., bears S. 15¼ E., 25 lks. dist., mkd. NM 260 M BT.

Chains

THE DARLING LINE, 260TH MILE

A cedar, 14 ins. diam., bears N. 41° E., 38 lks. dist., mkd. COL
260 M BT.

THE DARLING LINE, 261ST MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 261st mile.

Ascend 185 ft. through dense cedar and pinon timber, and scatteri
scrub oak.

17.50 Set a red brass tube, 3.5 ins. diam., 36 ins. long, 20 ins. in t
ground, with cap marked Mile Corner No. 260 + 17.50 Ch
1868-1925, and build a mound of stone around the monument

from which

A cedar, 24 ins. diam., bears S. 67¾° E., 26 lks. dist., mkd. W
NM BT.

A cedar, 8 ins. diam., bears N. 21½° W., 8 lks. dist., mkd. W
COLO BT.

Monument stands at the summit of a high ridge; begin descent
243 ft.

42.45 The Carpenter 70.175 Mi. Cor. bears North, 6.77 chs. dist.; an i
post; I remove this monument and obliterate the marks on t
four bearing trees.

79.94 Darling's 261st Mi. Cor., as restored by Albert B. Rich, in 19
an iron post, 3 ins. diam., firmly set, with cap marked and w
nessed as described in the official record.

Find a few surface stones, pieces of old decayed original post:
deposit stone found.

From Rich's monument

A pinon, 12 ins. diam., bears N. 68° 30' W., 54 lks. dist., mar
covered.

A pinon, 10 ins. diam., bears S. 38° 00' W., 21 lks. dist., mk
NM, other marks covered.

This point is accepted by me as the best available evidence of t
position of Darling's 261st Mi. Cor.

At point for corner

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in t

ground, with cap marked Mile Corner No. 261. 1868-1925, and build a collar of stone around the monument:

from which

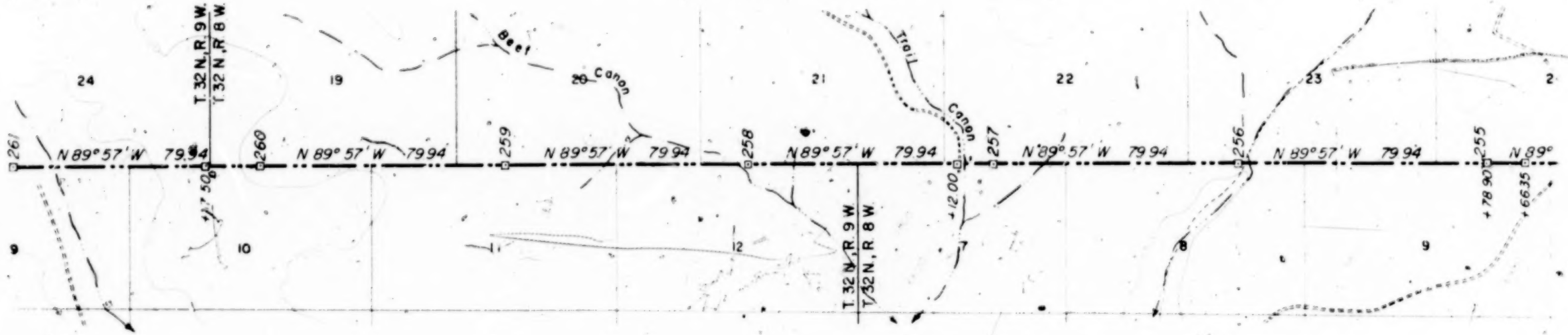
A pinon, 8 ins. diam., bears N. 36¼ E., 16 lks. dist., mkd. COLO 261 M BT.

A cedar, 8 ins. diam., bears S. 7 E., 38 lks. dist., mkd. NM 261 M BT.

C O L O R A D O

LA PLATA COUNTY

SOUTHERN UTE INDIAN RESERVATION



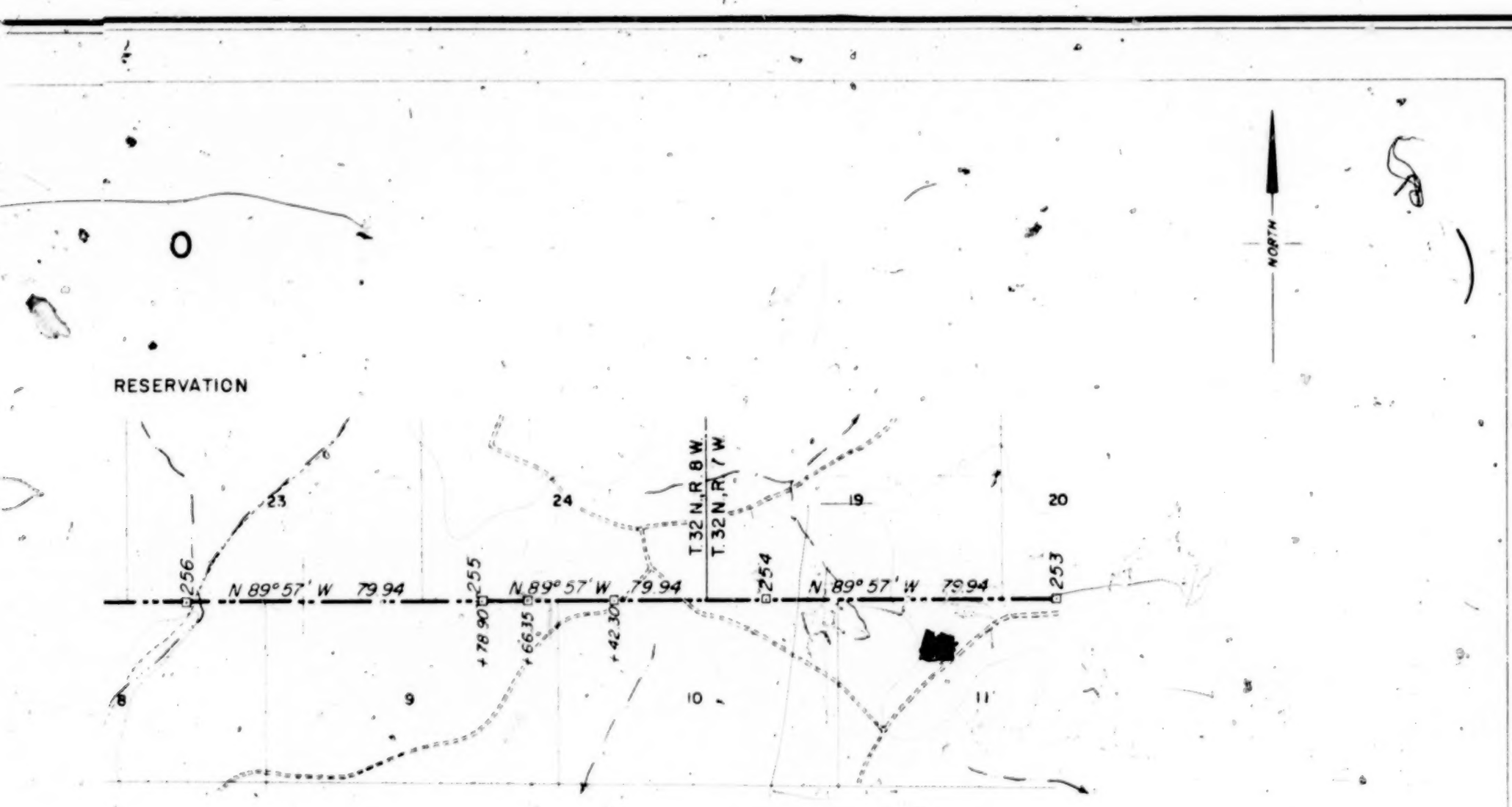
SAN JUAN COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch



C O

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COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph B. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 261

to

MILE CORNER No. 269

THE DARLING LINE, 262ND MILE

Chains	
	RETRACEMENT
	S. 89° 44′ W., on a retracement of the Darling boundary.
80.68	The 262nd Mi. Cor., as restored by Rich, bears N. 23 lks. dist.; Darling monument has become obliterated.
	Thence from the restored 262nd Mi. Cor. S. 89° 54′ W., on a retracement of the Darling boundary.
80.36	The 263rd Mi. Cor., as restored by Rich, bears S. 30 lks. dist.; Darling monument has become obliterated.
	Thence from the restored 263rd Mi. Cor. S. 89° 44′ W., on a retracement of the Darling boundary.
80.76	The 264th Mi. Cor., as restored by Rich, bears S. 9.6 lks. dist.; Darling monument has become obliterated.
	Thence from the restored 264th Mi. Cor. S. 89° 44′ W., on a retracement of the Darling boundary.
80.87	The 265th Mi. Cor., as established by Rich, bears S. 5 lks. dist.; 265th Mi. Cor. was not established by Darling.
	Thence from Rich's 265th Mi. Cor. S. 89° 44′ W., on a retracement of the Darling boundary.
68.03	Darling's Astronomical Monument No. 9 bears S. 6 lks. dist.; this determination the true line bears S. 89° 44′ W.
	Thence from Darling's Astronomical Monument No. 9, West, on retracement of the Darling boundary.
13.14	The 266th Mi. Cor. has become obliterated.
92.29	The 267th Mi. Cor. bears S. 10.6 lks. dist.; on this determination the true line bears S. 89° 56′ W.
	REESTABLISHMENT
	Thence from the 261st Mi. Cor. S. 89° 44′ W., on a reestablishment of the 262nd mile.
	Ascend 78 ft. gradually through heavy cedar and pinon timber, scattering scrub oak.
16.95	Top of ridge, bears N. and S., descend 85 ft.
37.98	Begin abrupt descent of 30 ft. to ravine.
39.82	Ravine, 5 ft. deep, 6 ft. wide, course NW.; ascend 28 ft.
47.70	Top of ascent; descend 165 ft. to gulch.

(cont.)

THE DARLING LINE, 262ND MILE

0.05 Sandstone ledge, bears NW. and SE.

5.45 The Carpenter 69.025 Mi. Cor. bears North, 6.83 chs. dist., an iron post; I remove this monument and obliterate the marks on the two bearing trees.

6.60 Begin abrupt descent of 45 ft. into gulch.

7.96 Gulch, 6 ft. cut banks, 3 ft. wide, course S. 30° W.; ascend 91 ft. to point for corner.

8.61 The proportional point; unable to identify Darling's 262nd Mi. Cor. Set a red brass tube, 3.5 ins. diam., 36 ins. long, 12 ins. in sandstone, with cap marked Mile Corner No. 262, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 8 ins. diam., bears N. 20° W., 54 lks. dist., mkd. COLO 262 M BT.

A cedar, 12 ins. diam., bears S. 38½° E., 31 lks. dist., mkd. NM 262 M BT. (Both trees were marked by Rich, no other trees suitable.)

THE DARLING LINE, 263RD MILE

REESTABLISHMENT

S. 89° 44' W., on a reestablishment of the 263rd mile.

Descend 82 ft. on broken S. slope, through dense cedar and pinon timber.

0.07 A monument established by Albert B. Rich for the 262nd Mi. Cor. bears North, 24 lks. dist.; an iron post, 3 ins. diam.; set in mound of stone, marked and witnessed as described in the official record.

15.36 The closing cor. of secs. 22 and 23, T. 32 N., R. 9 W., NM Prin. Mer., Colorado, bears North, 25 lks. dist.; an iron pipe, 3 ins. diam., 10 ins. above ground, marked and witnessed as described in the official record.

15.66 Dry creek, 8 ft. wide, course S.; ascend 118 ft.

16.43 Top of ascent; descend 32 ft. to ravine.

16.82 Sandstone ledge; marked ledge with a cross (+) on line.

Chains

THE DARLING LINE, 263RD MILE

54.96 The ¼ cor. of sec. 22, T. 32 N., R. 9 W., NM Prin. Mer., Colorad bears North, 14 lks. dist.; an iron pipe, 1 in. diam., 5 ins. abo ground, marked and witnessed as described in the official reco

55.37 Ravine, 6 ft. wide, 6 ft. cut banks, course S. 30° E.; ascend 82 to point for corner.

56.59 North, 8.39 chs.; search W., 10.50 chs. and E., 10.00 chs.; unable to find the Carpenter 68th Mi. Cor.

80.43 A monument established by Albert B. Rich for the 263rd Mi. Co bears North, 18 lks. dist.; an iron post, 3 ins. diam., set in mou of stone, marked and witnessed as described in the official reco

80.61 The proportional point; 263rd Mi. Cor. destroyed (Carpenter 68 Mi.).

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in th ground, with cap marked Mile Corner No. 263, 1868-1925, an build a mound of stone around the monument;

from which

A cedar, 12 ins. diam., bears S. 68½° E., 40 lks. dist., mkd. N 263 M BT.

A pinon, 7 ins. diam., bears N. 61¼° W., 12 lks. dist., mkd. CO 263 M BT.

THE DARLING LINE, 264TH MILE

REESTABLISHMENT

S. 89° 44' W., on a reestablishment of the 264th mile.

Ascend 100 ft. over rough E. slope, through dense cedar and pin timber.

10.46 Ridge, bears N. 30° E. and S. 30° W.

14.40 The closing cor. of secs. 21 and 22, T. 32 N., R. 9 W., NM Prin. Mer., Colorado, bears North, 18 lks. dist.; an iron post, 2 ins. diam., set in mound of stone, marked and witnessed as described in the official record.

16.20 Top of spur from higher ridge, slopes N.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 18 ins. in the ground to solid rock, with cap marked Mile Corner No. 26

THE DARLING LINE, 264TH MILE

16.20 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 14 ins. diam., bears S. 47½ W., 17 lks. dist., mkd. WP NM BT.

A cedar, 8 ins. diam., bears N. 26 W., 53 lks. dist., mkd. WP COLO BT.

Descend 256 ft. to point for corner.

12.08 Sandstone ledge, bears SW. and NE.

14.63 Wash, 6 ft. deep, 5 ft. cut banks, course SW.

14.63 The ¼ cor. of sec. 21, T. 32 N., R. 9 W., NM Prin. Mer., Colorado, bears North, 9 lks. dist.; an iron post, 1 in. diam., set in mound of stone, marked and witnessed as described in the official record.

14.82 The Carpenter 67th Mi. Cor. bears North, 7.43 chs. dist.; an iron post; I remove this monument and obliterate the marks on the bearing trees.

15.50 A monument established by Albert B. Rich for the 264th Mi. Cor. bears North, 9 lks. dist.; an iron post, 3 ins. diam., set in mound of stone, marked and witnessed as described in the official record.

15.61 The proportional point; unable to identify Darling's 264th Mi. Cor. Set a red brass tube, 3.5 ins. diam., 36 ins. long, 18 ins. in the ground to solid rock, with cap marked Mile Corner No. 264, 1868-1925, and build a mound of stone around the monument;

from which

A pinon, 12 ins. diam., bears North, 59 lks. dist., mkd. COLO 264 M BT.

A pinon, 8 ins. diam., bears S. 74¾ W., 29 lks. dist., mkd. NM 264 M BT.

Monument stands in a trail bearing N. and S.

THE DARLING LINE, 265TH MILE

REESTABLISHMENT

S. 89° 44' W., on a reestablishment of the 265th mile.

Descend 203 ft. on broken N. slope, through dense cedar and pinon timber, service and scrub oak undergrowth.

Chains	THE DARLING LINE, 265TH MILE
14.07	The closing cor. of secs. 20 and 21, T. 32 N., R. 9 W., NM Prin. Mer. Colorado, bears North, 9 lks. dist.; an iron post, 2 in. diam., 8 ins. above ground, marked and witnessed as described in the official record.
21.88	E. rim of canon, a sandstone ledge, 20 ft. high, bears N. and S.
24.35	Bottom of canon, course N.; ascend 94 ft. to W. rim.
27.32	W. rim of canon, bears N. 30° E. and S.; ascend 68 ft. to top of ledge.
30.32	Top of sandstone ledge, bears N. 30° E. and S.; ascend 5 ft. to spur.
32.36	Spur, slopes N.; descend 193 ft.
33.88	Sandstone ledge, bears NNE. and SW.
44.49	The Carpenter 66.125 Mi. Cor. bears North, 7.26 chs. dist.; an iron post; I remove this monument and obliterate the marks on the bearing trees.
50.97	Bottom of descent; ascend 44 ft.
54.14	The ¼ cor. of sec. 20, T. 32 N., R. 9 W., NM Prin. Mer., Colorado, bears South, 4 lks. dist.; an iron post, 1 in. diam., 8 ins. above ground, marked and witnessed as described in the official record.
55.75	Small gulch, course N.
62.75	Sandstone ledge, 30 ft. high, bears N. and S. Set tablet in sandstone ledge, marked Mile Corner No. 264 – 62.75 Chs., 1868-1925; from which A pinon, 8 ins. diam., bears N. 85½° E., 35 lks. dist., mkd. WP COLO BT. A pinon, 10 ins. diam., bears S. 4° W., 63 lks. dist., mkd. WP NM BT. Raise a mound of stone E. of tablet. Begin 153 ft. descent to ravine over NW. slope.
68.00	Bottom of ravine, course N. 30° W.; ascend 9 ft.
69.26	Top of ascent; descend 40 ft. to rim of canon.
79.78	E. rim of Line Canon, bears NE. and SW.
86.10	Sandstone ledge, bears NE. and SW.

THE DARLING LINE, 265TH MILE

.61 The proportional point: the 265th Mi. Cor. was not established by Darling; point falls on steep, broken NW. slope; I did not establish this corner.

THE DARLING LINE, 266TH MILE

REESTABLISHMENT

Thence from the point for the 265th Mi. Cor. S. 89° 44' W., on a reestablishment of the 266th mile.

Descend abruptly 269 ft. over NW. slope, through dense cedar and pinon timber, descending 269 ft. to point on SE. slope.

.23 Sandstone ledge, bears NE. and SW.

Set tablet in ledge, marked Mile Corner No. 265 + 0.23 Chs., 1868-1925;

from which

A pinon, 12 ins. diam., bears N. 47° E., 7 lks. dist., mkd. WP 265 M COLO BT.

Raise a mound of stone S. of monument.

.24 A monument established by Albert B. Rich for the 265th Mi. Cor. bears North, 5 lks. dist.; an iron post, 3 ins. diam., 6 ins. above ground, marked and witnessed as described in the official record.

.25 Bottom of Line Canon, course SW.; ascend abruptly over broken SE. slope.

.51 The closing cor. of secs. 19 and 20, T. 32 N., R. 9 W., NM Prin. Mer., Colorado, bears North, 4 lks. dist.; an iron post, set in mound of stone, marked and witnessed as described in the official record.

Ascend 168 ft. over S. slope with large boulders.

.47 Steep W. slope of Las Animas Canon.

Set a tablet in sandstone boulder, 3½x6x10 ft., marked Mile Corner No. 265 + 37.47 Chs., 1868-1925, and build a mound of stone S. of monument.

Descend 168 ft. to right bank of Las Animas River.

.07 Sandstone ledge.

.10 Right bank of Las Animas River; ascend 53 ft. to point for Astronomical Monument No. 9.

Chains	THE DARLING LINE, 266TH MILE
53.79	Denver and Rio Grande Railroad on a fill; thence through de willows.
	REESTABLISHMENT
56.36	Leave bottom land; enter small orchard.
61.40	Irrigation ditch, bears S. 30° E. and N. 30° E.
63.13	U. S. Highway No. 550, from Durango, Colorado, to Farmingt New Mexico; bears N. and S.
64.90	Construct a concrete monument, in a form 16x24x36 ins., set 24 i in the ground, with tablet seated in the top marked Mile Cor No. 265 + 64.90 Chs., 1868-1925; elevation on top of monume 5973.63 ft.
67.69	The Carpenter Astronomical Monument No. 2 bears North, 7 chs. dist.; I remove this monument.
68.25	North, 3 lks. dist.; an iron pipe, 3 ins. diam., marked and witnes as described in the official record.
68.27	Darling's Astronomical Monument No. 9; a sandstone bould irregular shape, approximately 2x2½ ft. in cross-section, 4' long, marks obliterated. Mr. Arthur D. Kidder personally iden fied this boulder, in 1902, at which time the marks were legible.
	Set original Darling boulder, 2 ft. in the ground in a large concre base, with tablet in the top marked Mile Corner No. 265 + 68. Chs., 1868-1925.
	Thence from Darling's Astronomical Monument No. 9, as rec structed, Mile Corner No. 265 + 68.27 Chs., S. 89° 56' W., co tinuing with new distance, on a reestablishment of the 266th mi
	Ascend 143 ft. on steep, stony E. slope, through cedar and pino timber.
5.70	Top of steep ascent.
13.11	The proportional point; Darling's 266th Mi. Cor. destroyed (Ca penter 65th Mi.).
	Construct a concrete monument, in a form 8x14x36 ins., set 26 in in the ground, with tablet seated in the top marked Mile Corn No. 266, 1868-1925;

THE DARLING LINE, 266TH MILE

from which

A cedar, 8 ins. diam., bears N. 43¼ E., 67 lks. dist., mkd. COLO 266 M BT.

A cedar, 6 ins. diam., bears S. 2¼ E., 21 lks. dist., mkd. NM 266 M BT.

THE DARLING LINE, 267TH MILE

REESTABLISHMENT

S. 89° 56' W., on a reestablishment of the 267th mile.

Ascend 44 ft. gradually through cedar and pinon timber.

.03 Albert B. Rich's 266th Mi. Cor. bears North, 2 lks. dist.; an iron pipe, 3 ins. diam., 12 ins. above ground, marked and witnessed as described in the official record, except that the NE. bearing tree is down, the SE. bearing tree is dead.

.16 The closing cor. of T. 32 N., Rs. 9 and 10 W., NM Prin. Mer., Colorado, bears North, 4.2 lks. dist.; an iron pipe, 3 ins. diam., 12 ins. above ground, firmly set, marked and witnessed as described in the official record.

A sandstone, 8x8x8 ins. above ground, mkd. with 6 grooves on E., W., and N. faces, beside pipe.

.70 Ascend 680 ft. over steep rocky slope, through scrub pinon and cedar.

.30 Leave timber; enter large sandstone boulder field on slope, bears N. and S.

1.00 Sandstone ledge, bears N. and S.

.40 Sandstone ledge, bears N. and S.

.16 The Carpenter 64th Mi. Cor. bears North, 10.62 chs. dist.; an iron post; I remove this monument and obliterate the marks on the remaining bearing tree.

.00 Flat top ridge, bears N. and S.; covered with cedar and pinon timber.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 26 ins. in the ground, with cap marked Mile Corner No. 266 + 61.00 Chs., 1868-1925, and build a large mound of stone around the monument;

Chains THE DARLING LINE, 267TH MILE

from which

A cedar, 8 ins. diam., bears S. 68° E., 31 lks. dist., mkd. WP NM BT.

A cedar, 8 ins. diam., bears N. 0½° W., 49 lks. dist., mkd. WP COLO BT.

62.65 Begin descent of 215 ft. from flat top ridge.

77.40 Arroyo, course N.; bottom of descent; ascend to point for corner.

79.18 Darling's 267th Mi. Cor.: a sandstone, 8x5x10 ins. above ground, firmly set in mound of stone, mkd. C on N., NM on S., 267 M on E., and 68 on W. face.

In place of stone

Set red brass tubing, 3.5 ins. diam., 36 ins. long, 26 ins. in the ground, with cap marked Mile Corner No. 267, 1868-1925;

from which

A pinon, 10 ins. diam., bears S. 67° W., 17 lks. dist., mkd. NM 267 M BT.

A cedar, 10 ins. diam., bears N. 2° W., 41 lks. dist., mkd. COLO 267 M BT.

THE DARLING LINE, 268TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary.

80.00 The 268th Mi. Cor. has become obliterated.

163.50 The 269th Mi. Cor. bears S. 13.5 lks. dist.; on this determination the true line bears S. 89° 57' W.

REESTABLISHMENT

Thence from the 267th Mi. Cor. S. 89° 57' W., on a reestablishment of the 268th mile.

Ascend gradually over rolling country, through pinon and cedar timber.

6.20 Top of 20 ft. ascent; begin descent of 45 ft.

12.45 Bottom of descent; ascend 30 ft.

17.63 Top of ascent; descend 74 ft.

THE DARLING LINE, 268TH MILE

.08 Sandstone ledge, bears N. and S.

.26 Wash, course N.

.11 Ravine, 10 lks. wide, course N.

.14 Sandstone bench, nearly level.

.18 Top of rim rock, bears N. and S.

.20 Edge of rim rock; descend 250 ft. over sandstone ledges and boulders, through cedar and pinon timber.

.23 The calculated position for the Carpenter 63rd Mi. Cor. bears North, 9.92 chs. dist.; make careful search, fail to find the monument or any of its accessories.

.72 Beginning of sandstone boulders on steeper descent.

.00 Bottom of descent; ascend 10 ft. to point for corner.

.75 The proportional point; unable to identify Darling's 268th Mi. Cor. Set a red brass tube, 3.5 ins. diam., 36 ins. long, 6 ins. in the ground, to a cross chiseled in solid rock, with cap marked Mile Corner No. 268, 1868-1925, and build a mound of stone, 8 ft. base, 3 ft. high, around the monument;

from which

A cedar, 10 ins. diam., bears S. 54° E., 31 lks. dist., mkd. NM 268 M BT.

A cedar, 12 ins. diam., bears N. 13¾° W., 57 lks. dist., mkd. COLO 268 M BT.

THE DARLING LINE, 269TH MILE

REESTABLISHMENT

S. 89° 57' W., on a reestablishment of the 269th mile.
Over nearly level land, through cedar and pinon timber.

.30 Sandstone spur, slopes S., E. rim of Cox Canon.
Set a tablet in solid rock, marked Mile Corner No. 268 + 13.30 Chs., 1868-1925, and build a mound of stone over monument.
Descend 225 ft. to bottom of canon.

.73 Road, bears N. and S., on E. side of Cox Canon bottom.

Chains THE DARLING LINE, 269TH MILE

28.40 Arroyo, in canon, 1 ch. wide; junction with wash, about 6.0 chs. dist. upstream.

38.05 Road, bears NW. and SE.; out of Cox Canon.

38.40 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 268 + 38.40 Chs., 1868-1925.

Begin ascent of 270 ft. out of canon, to a point in the 270th mile.

49.25 Leave sage brush; enter timber, bears N. and S.

51.73 The Carpenter 62nd Mi. Cor. bears North, 7.82 chs. dist.; an iron post; I remove this monument.

54.20 Wire fence, bears NE. and SW.

62.40 Top of sandstone point, bears N.; sandstone ledge bears N., about 7 lks. dist., at end of point.

64.50 Wash, 10 lks. wide, course NE.

78.25 Sandstone rim, at head of small canon, course NE. to Cox Canon.

81.75 Darling's 269th Mi. Cor.: a sandstone, 10x6x15 ins. above ground, firmly set, mkd. C on N., N on S., 68 on W. face; other marks illegible.

Construct a concrete monument, in a form 8x11x18 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 269, 1868-1925. The concrete monument adjoins the W. face of the Darling sandstone; a concrete base encompasses both monuments, and build a large mound of stone around both monuments;

from which

A pinon, 6 ins. diam., bears S. 27¼ E., 20 lks. dist., mkd. N. 269 M BT.

A cedar, 12 ins. diam., bears N. 89½ W., 15 lks. dist., mkd. COLO 269 M BT

C O L O R A D O

LA PLATA COUNTY

SOUTHERN UTE INDIAN RESERVATION

T. 32 N., R. 10 W.
T. 32 N., R. 9 W.

ASTRONOMICAL MON. No. 9

Cox Canon

Animas River

Line Canon

22 23 24 19 20 21

269 S 89° 57' W 81.75 268 S 89° 57' W 81.75 267 S 89° 56' W 79.18 266 S 89° 56' W 13.11 265+0.23 S 89° 44' W 68.27 264 S 89° 44' W 80.61 263 S 89° 44' W 80.61

+58.40 +13.30 +61.00 +68.27 +64.90 +62.75 +16.20

7 8 9 10 11 12 7

T. 32 N., R. 10 W.
T. 32 N., R. 9 W.

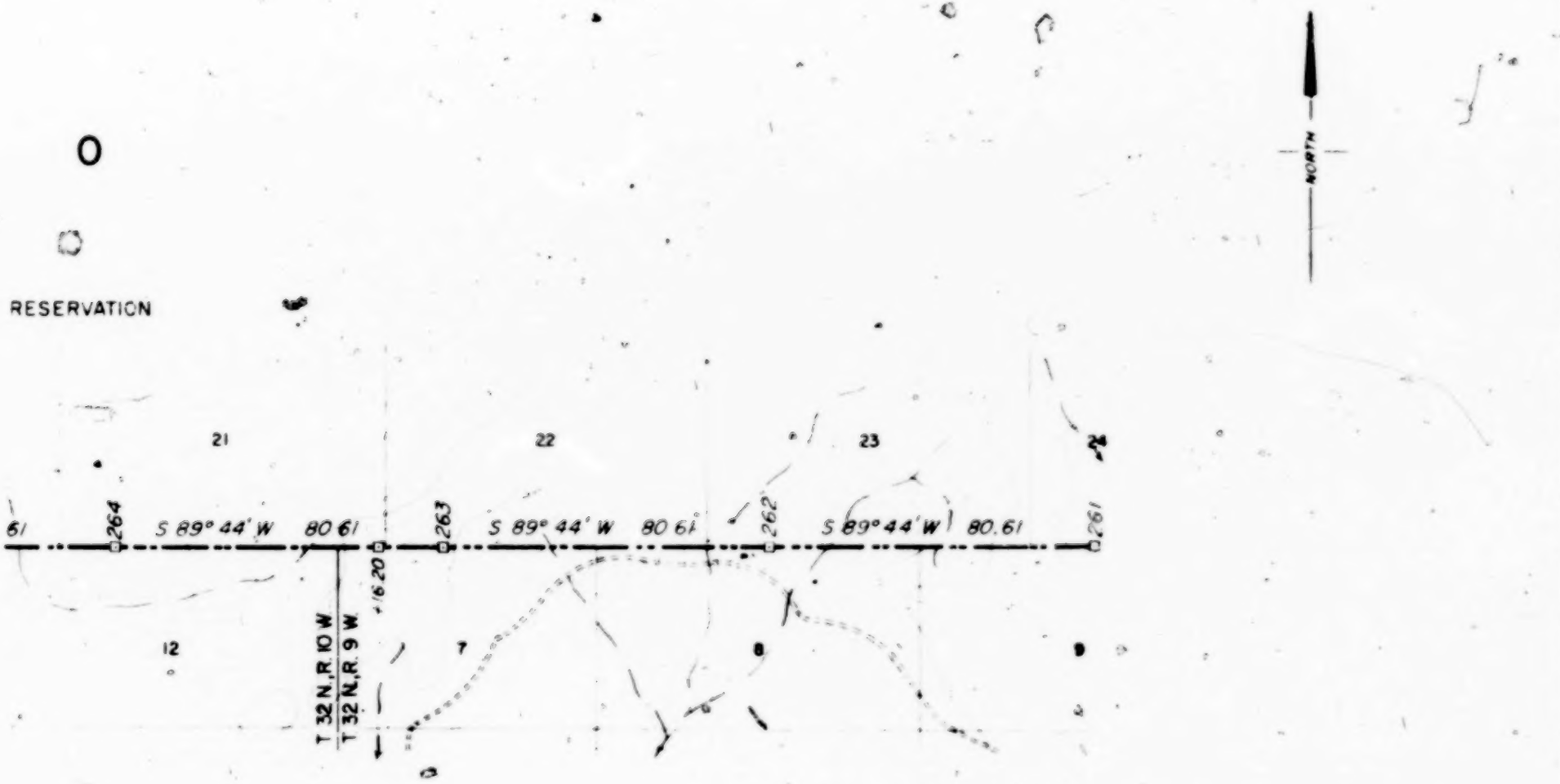
SAN JUAN COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 60 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph B. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 269

to

MILE CORNER No. 278

THE DARLING LINE, 270TH MILE

Chains *RETRACEMENT*

West, on a retracement of the Darling boundary.

80.00 The 270th Mi. Cor. has become obliterated.

161.00 The 271st Mi. Cor. has become obliterated.

241.38 The 272nd Mi. Cor. bears N. 88 lks. dist.; on this determination the true line bears N. 89 47' W.

REESTABLISHMENT

Thence from the 269th Mi. Cor. N. 89 47' W., on a reestablishment of the 270th mile.

Ascend through cedar and pinon timber, and dense service and oak underbrush.

9.00 Top of ascent; descend 25 ft.

15.70 Bottom of descent; ascend 225 ft. over gradual and steep slopes.

21.86 Slope steepens, over rim rock and sandstone boulders.

24.93 Sandstone ledge, bears NE. and SW.

30.13 Sandstone spur, slopes N.; top of ascent; begin descent.

35.00 Bottom of 50 ft. descent; ascend 30 ft. to spur.

38.84 Top of spur, slopes N.; descend 209 ft. over gradual and steep slopes.

46.73 Sandstone rim, bears NW. and SE.; descent steepens over large boulders.

50.65 The Carpenter 61st Mi. Cor. bears North, 7.52 chs. dist.; an iron post; I remove this monument.

63.14 Small canon, course SW.

64.64 Sandstone spur between two joining canons, S., 2 chs. dist. to point of spur.

67.26 Bottom of canon, 1.50 chs. wide, rim to rim, course S.

69.00 Begin ascent of 50 ft. to point for corner.

80.00 N., 5 lks. dist., fence, bears N. 80 E. and S. 80 W.

80.46 The proportional point. Darling's 270th Mi. Cor. destroyed (Carpenter 61st Mi.).

Chains

THE DARLING LINE, 270TH MILE

Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 270, 1868-1925;

from which

A cedar, 8 ins. diam., bears N. 53° E., 19 lks. dist., mkd. COLO 270 M BT.

A cedar, 14 ins. diam., bears S. 80° E., 11 lks. dist., mkd. NM 270 M BT.

THE DARLING LINE, 271ST MILE

REESTABLISHMENT

N. 89° 47' W., on a reestablishment of the 271st mile.

Ascend gradually through cedar and pinon timber, and service brush.

11.81 Wash, 10 lks. wide, course NE.

21.35 Top of 80 ft. ascent; thence over rolling land.

23.49 Bottom of draw, 2 lks. wide, course N.

30.24 Bottom of draw, 3 lks. wide, course N.

35.00 Top of ridge, bears N. and S.; begin 150 ft. descent.

49.94 The Carpenter 60th Mi. Cor. bears North, 6.43 chs. dist., an iron post; I remove this monument and obliterate the marks on the remaining bearing tree.

62.94 Arroyo, in sage brush flat, 8 lks. wide, course NW.

78.94 Small wash, 15 lks. wide, course NW.

80.46 The proportional point: Darling's 271st Mi. Cor. destroyed (Carpenter 60th Mi.).

Point falls in a small wash; impractical to construct a monument.

THE DARLING LINE, 272ND MILE

REESTABLISHMENT

N. 89° 47' W., on a reestablishment of the 272nd mile.

Descend 29 ft.

Chains THE DARLING LINE, 272ND MILE

0.80 Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 271 + 0.80 Chs., 1868-1925;
from which
A cedar, 6 ins. diam., bears N. 46½ E., 109 lks. dist., mkd. WP COLO BT.
A cedar, 8 ins. diam., bears S. 62¾ E., 68 lks. dist., mkd. WP NM BT.
Set a cedar post in ground, alongside of monument.

3.57 A sandstone, 8x10x20 ins., and small mound of stone bears North, 1.05 chs. dist.; marks illegible; at intersection of fences, bears N. and S., E. and W.
Bottom of 29 ft. descent; ascend 150 ft. to spur.

13.70 Wash, 52 lks. wide, course SE.

15.70 Road, bears N. and S.

17.90 Enter timber, bears N. and S.

36.65 Drift fence, bears NW. and SE.

37.95 Top of spur, slopes N.; begin descent.

42.50 Bottom of descent; ascend 20 ft. over rolling land.

49.95 The Carpenter 59th Mi. Cor. bears North, 6.55 chs. dist.; an iron post; to remove this monument.

80.46 Darling's 272nd Mi. Cor.; a broken sandstone, 8x8x10 ins., lying on ground, mkd. C. and NM. on opposite faces, other marks obliterated;
from which
A cedar, bears SW., with an old blaze, marks destroyed.
A pinon, bears NW., marks destroyed.
Remains of cedar post besides sandstone.
In place of stone
Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 272, 1868-1925,
from which
A cedar, 14 ins. diam., bears N. 10¼ E., 79 lks. dist., mkd. COLO 272 M BT.
A cedar, 14 ins. diam., bears S. 30¾ E., 47 lks. dist., mkd. NM 272 M BT.

THE DARLING LINE, 273RD MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary.

80.00 The 273rd Mi. Cor. has become obliterated.

82.59 Cor. secs. 23 and 24, T. 32 N., R. 11 W., NM Prin. Mer., Colorado bears South, 57.7 lks. dist.

Thence from the above section corner, with a random traverse, continuing on a retracement of the Darling boundary.

159.96 The 274th Mi. Cor. has become obliterated.

Thence from the point for the 274th Mi. Cor. N. 88 .. W., continuing on a retracement of the Darling boundary.

165.74 Cor. secs. 23 and 24, T. 32 N., R. 11 W., NM Prin. Mer., Colorado.

Thence from the above section corner, West, continuing on a retracement of the Darling boundary.

240.45 Darling's 275th Mi. Cor. bears N. 2 lks. dist.; on this determination the true line bears S. 89 50' W.

REESTABLISHMENT

Thence from the 272nd Mi. Cor. S. 89 50 W., on a reestablishment of the 273rd mile.

Ascend 25 ft. to road.

4.86 Road, bears NW. and SE.

5.40 Construct a concrete monument, in a form 16x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 272 + 5.40 Chs., 1868-1925;

from which

A cedar, 16 ins. diam., bears N. 17¼ W., 57 lks. dist.; mkd. W P COLO BT.

A cedar, 12 ins. diam., bears S. 80¾ E., 34 lks. dist., mkd. W P NM BT.

Ascend 100 ft. to top of ridge.

24.31 Top of ridge, bears NW. and SE.; begin descent of 140 ft.

41.14 The Carpenter 58.1 Mi. Cor., bears North, 6.48 chs. dist.; an iron post; I remove this monument and obliterate the marks on the three bearing trees.

Chains

THE DARLING LINE, 273RD MILE

42.49 The ¼ cor. of sec. 24, T. 32 N., R. 11 W., NM Prin. Mer., Colorado, bears South, 35 lks. dist.; a sandstone, 8x6x12 ins. above ground, mkd. ¼ on N. face; a mound of stone N. of cor.

43.65 Fence, bears NW. and SE.

47.76 Sandstone ledge, bears NW. and SE.

58.42 Leave timber, bears N. and S.

69.35 Enter cedar and pinon timber, bears N. and S.

80.15 The proportional point; Darling's 273rd Mi. Cor. destroyed (Carpenter 58th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 273, 1868-1925;

from which

A cedar, 8 ins. diam., bears N. 14½ E., 22 lks. dist., mkd. COLO 273 M BT.

A cedar, 6 ins. diam., bears S. 81 W., 8 lks. dist., mkd. NM 273 M BT.

THE DARLING LINE, 274TH MILE

REESTABLISHMENT

S. 89 50' W., on a reestablishment of the 274th mile.

Thence over rough rolling land, through cedar and pinon timber.

2.44 Cor. of secs. 23 and 24; T. 32 N., R. 11 W., NM Prin. Mer., Colorado, bears South, 33 lks. dist.; a sandstone, 10x4x10 ins. above ground, firmly set, mkd. 1 groove on E., 5 grooves on W. face, with a NE. and a NW. bearing tree.

9.80 Top of low ridge, bears N. and S.

41.99 The ¼ cor. of sec. 23, T. 32 N., R. 11 W., NM Prin. Mer., Colorado, bears South, 24 lks. dist.; a sandstone, 8x5x6 ins. above ground, mkd. ¼ on N. face, with two bearing trees.

49.87 The Carpenter 57th Mi. Cor. bears North, 6.54 chs. dist.; an iron post; I remove this monument and obliterate the marks on the three bearing trees.

Chains

THE DARLING LINE, 274TH MILE

80.15 The proportional point: Darling's 274th Mi. Cor. destroyed (Carpenter 57th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 274, 1868-1925;

from which

A cedar, 7 ins. diam., bears N. 30° E., 67 lks. dist., mkd. COLO 274 M BT.

A cedar, 12 ins. diam., bears S. 38° E., 81 lks. dist., mkd. NM 274 M BT.

THE DARLING LINE, 275TH MILE

REESTABLISHMENT

S. 89° 50' W., on a reestablishment of the 275th mile.

Ascend 65 ft., through cedar and pinon timber.

5.46 Cor. of secs. 22 and 23, T. 32 N., R. 11 W., NM Prin. Mer., Colorado, bears South, 24 lks. dist.; two sandstones, side by side, 8x4x8 ins. and 10x3x4 ins. above ground, firmly set, marks illegible; with one marked bearing tree.

26.20 Top of ascent; thence across nearly level sandstone flat through cedar and pinon timber.

38.80 Top of sandstone bluff, bears N. and S.

Set a tablet in solid rock, marked Mile Corner No. 274 + 38.80 Chs., 1868-1925;

from which

A cedar, 12 ins. diam., bears N. 25½° E., 70 lks. dist., mkd. WP COLO BT.

A cedar, 14 ins. diam., bears S. 30½° E., 53 lks. dist., mkd. WP COLO BT.

Begin steep descent of 165 ft.

39.16 Sandstone ledge, bears N. and S. This ledge was mentioned by Darling at 274th Mi. plus 39.00 chs.

50.08 The Carpenter 56th Mi. Cor. bears North, 6.74 chs. dist.; an iron post; I remove this monument and obliterate the marks on the remaining bearing tree.

Chains ..... THE DARLING LINE, 275TH MILE

51.50 Fence, bears N. and S.

55.70 Bottom of descent; enter flats; leave timber, bears NW. and SE. Road, bears NW. and SE.

62.50 Arroyo, 10 lks. wide, course NW.

65.00 Leave flats; enter cedar and pinon timber; bears NW. and SE.; ascend 30 ft. to top of spur.

69.25 Top of spur, slopes N.

78.15 Fence, bears NW. and SE.

80.15 Darling's 275th Mi. Cor.: a cedar, 12 ins. diam., blazed on four sides, figure 8 still visible on W. face, chip mkd. NM. found at foot of tree, other chips carried scribe marks. Remark the tree for corner.

THE DARLING LINE, 276TH MILE

RETRACEMENT

West on a retracement of the Darling boundary.

91.38 The 276th Mi. Cor. bears S. 42.7 lks. dist.; on this determination the true line bears S. 89° 42' W.

REESTABLISHMENT

Thence from the 275th Mi. Cor. S. 89° 42' W., on a reestablishment of the 276th mile.

Descend 184 ft. to corner, through heavy cedar and pinon timber and sage brush.

0.30 Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 275 + 0.30 Chs., 1868-1925;

from which

A cedar, 10 ins. diam., bears N. 24½° E., 38 lks. dist., mkd. WP COLO BT.

A cedar, 16 ins. diam., bears S. 29° E., 21 lks. dist., mkd. WP NM BT.

5.29 The closing cor. of secs. 21 and 22, T. 32 N., R. 11 W., NM Prin. Mer., Colorado, bears North, 4 lks. dist.; a boulder stone, 6x4x?

Chains

THE DARLING LINE, 276TH MILE

ins. above ground, mkd. CC on N., 3 grooves on E., 3 grooves on W. face, with two bearing trees.

6.50 Leave timber, enter sage brush.

44.95 The ¼ cor. of sec. 21, T. 32 N., R. 11 W., NM Prin. Mer., Colorado bears South, 20 lks. dist.; a sandstone, 7x5x8 ins. above ground, mkd. ¼ on N. face.

50.11 The Carpenter 55th Mi. Cor. bears North, 7.38 chs. dist.; an iron post, firmly set; I remove this monument and obliterate the marks on the bearing tree.

75.56 Arroyo, 54 lks. wide, course NW.

81.38 The Darling 276th Mi. Cor.; a small mound of stone, none mkd., and a piece of a cedar post, mkd. COLO. lying on ground alongside.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 276, 1868-1925.

An E. and W. wire fence, bears N., 38 lks. dist.

THE DARLING LINE, 277TH MILE

RETRACEMENT

West, on a retracement of the Darling boundary.

80.00 The 277th Mi. Cor. has become obliterated.

160.14 The 278th Mi. Cor. bears N. 43 lks. dist.; on this determination the true line bears N. 89° 51' W.

REESTABLISHMENT

Thence from the 276th Mi. Cor. N. 89° 51' W., on a reestablishment of the 277th mile.

Ascend 46 ft.

4.47 The closing cor. of secs. 20 and 21, T. 32 N., R. 11 W., NM Prin. Mer., Colorado; a sandstone, 8x4x5 ins. above ground, mkd. CC on N., 4 grooves on E., and 2 grooves on W. face.

An E. and W. fence bears S., 1 lk. dist.

6.07 Fence, bears E. and W.

Chains

THE DARLING LINE, 277TH MILE

10.47 Enter timber, bears NW. and SE.

25.45 Top of ascent: descend 100 ft. to point for corner.

44.07 The ¼ cor. of sec. 20, T. 32 N., R. 11 W., NM Prin. Mer., Colorado, bears North, 25 lks. dist.: a sandstone, 8x4x6 ins. above ground, mkd. ¼ on N. face.

48.80 The Carpenter 54th Mi. Cor. bears North, 6.71 chs. dist.: an iron post, firmly set: I remove this monument.

62.44 Enter cedar timber, bears NW. and SE.

80.07 The proportional point: 277th Mi. Cor. destroyed (Carpenter 54th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 277, 1868-1925:

from which

A cedar, 10 ins. diam., bears S. 23° E., 43 lks. dist., mkd. NM 277 M BT.

A cedar, 8 ins. diam., bears N. 23¾° W., 21 lks. dist., mkd. COLO 277 M BT.

Corner stands 15 lks. S. of an E. and W. wire fence.

THE DARLING LINE, 278TH MILE

REESTABLISHMENT

N. 39° 51' W., on a reestablishment of the 278th mile.

Descend 146 ft. slope, through timber.

4.49 The closing cor. of secs. 19 and 20, T. 32 N., R. 11 W., NM Prin. Mer., Colorado, bears North, 11 lks. dist.: a sandstone, 10x4x18 ins., set 12 ins. in the ground, mkd. with 5 grooves on E. and 1 groove on W. face: a cedar bearing tree according to record. This corner was found lying on ground.

21.70 Fence, bears N. and S.

35.10 Leave timber, bears N. and S.

36.70 Irrigation ditch, dry, course SW.

41.67 North, 10 lks. dist.: a sandstone, 18x8x8 ins., lying on ground, mkd. CC. on one face: this location appears to be about 4.30 chs. E.

Chains THE DARLING LINE, 278TH MILE

of the N. and S. center line of sec. 10, T. 32 N., R. 12 W., NM Prin. Mer., New Mexico.

44.21 North, 7 lks. dist.: a sandstone, 8x4x8 ins., above ground, mkd. ' on N. face; this is near the N. and S. center line of sec. 19, T. 32 N., R. 11 W., NM Prin. Mer., Colorado.

48.73 The Carpenter 53rd Mi. Cor. bears North, 6.52 chs. dist.: an iron post, firmly set; I remove this monument.

55.10 Trail, bears NW. and SE.

73.40 Trail, bears NW. and SE.

74.80 Arroyo, course NW.

75.80 Road, ungraded, bears N. and S.

76.90 Construct a concrete monument, in a form 16x24x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 277 + 76.90 Chs., 1868-1925, and build a mound of stone around the monument.

80.07 Darling's 278th Mi. Cor.: a closely scattered mound of stone, none mkd.: a cedar post, 3 ins. x 3 ins. x 3 ft., deposited under ground.

In place of post

Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 278, 1868-1925, and build a mound of stone around the monument;

from which

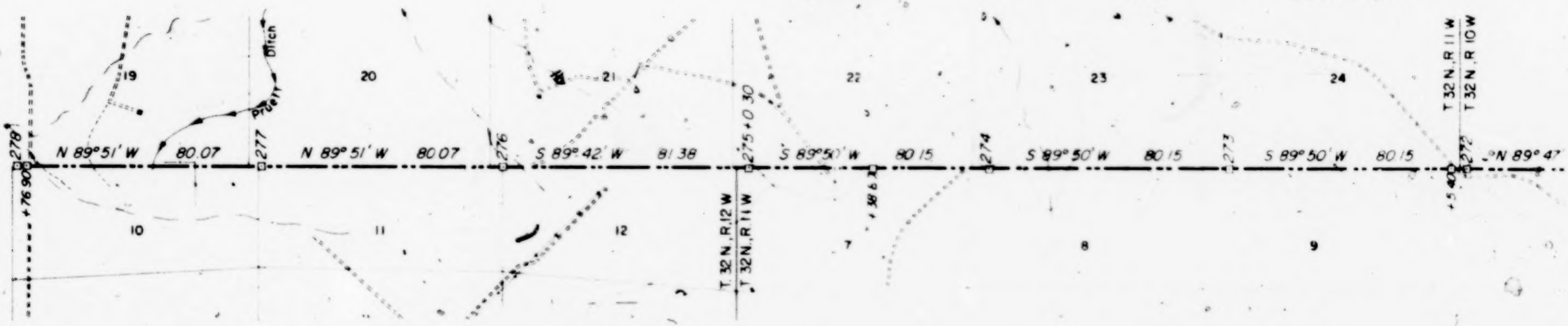
A cedar, 10 ins. diam., bears S. 15½ E., 45 lks. dist., mkd. NM 278 M BT.

A cedar, 4 ins. diam., bears N. 38 W., 78 lks. dist., mkd. BT.

C O L O R A D O

LA PLATA COUNTY

SOUTHERN UTE INDIAN RESERVATION



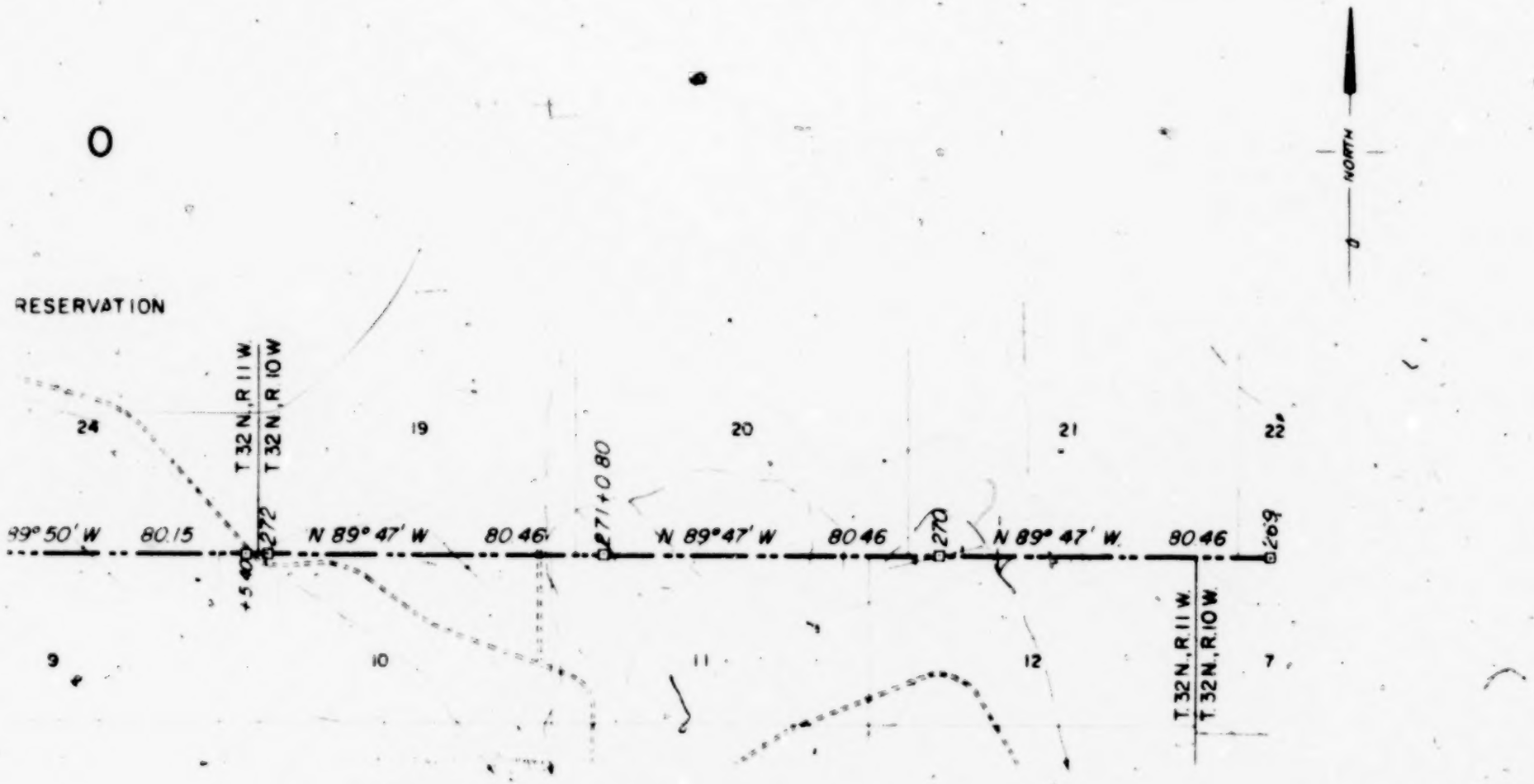
SAN JUAN COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40

40 Chains to the inch



C O

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph B. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 278

to

MILE CORNER No. 289 + 35

THE DARLING LINE, 279TH MILE

Chains

RETRACEMENT

West, on a retracement of the Darling boundary.

80.00 The 279th Mi. Cor. has become obliterated.

159.88 The 280th Mi. Cor. bears S. 11.2 lks. dist.; on this determination the true line bears S. 89° 57′ W.

REESTABLISHMENT

Thence from the 278th Mi. Cor. S. 89° 57′ W., on a reestablishment of the 279th mile.

Begin ascent of 75 ft.

1.61 South, 2 lks. dist.; a sandstone, 8x4x12 ins., lying on ground, mkd. ¼ CC. on one face; this point appears to be about 3.50 chs. E. of the record position for the closing cor. of secs. 9 and 10, T. 32 N., R. 12 W., NM Prin. Mer., New Mexico.

4.09 The closing cor. of T.32 N., Rs. 11 and 12 W., NM Prin. Mer., Colorado; a sandstone, 12x20x9 ins. above ground, mkd. CC on N., 6 grooves on E., 6 grooves on W. face.

5.23 Top of low ridge, bears N. and S.; abrupt descent of 75 ft. over ridge face.

28.35 Fork of two deep arroyos, course N.; ascend 65 ft. to ridge top.

37.50 Enter timber, bears NE. and SW.

37.90 Foundation of old stone dwelling, bears S., about 2 chs. dist.

41.50 Top of ridge, bears N. and S.

N. face of sandstone boulder, 20x30 ft., 10 ft. high, bears S., 18 lks. dist.; descend 72 ft.

44.90 North, 1 lk. dist.; a sandstone, 10x4x22 ins., firmly set in ground and small mound of stone, mkd. ¼ on N. face; a cedar bearing tree, bears NE., mkd. ¼ S. BT.

This location is near the record position for the N. and S. center lines of sec. 24, T. 32 N., R. 12 W., NM Prin. Mer., Colorado, and sec. 9, T. 32 N., R. 12 W., New Mexico.

48.56 The Carpenter 52nd Mi. Cor. bears North, 6.37 chs. dist.; an iron post, firmly set; I remove this monument and obliterate the marks on the two bearing trees.

hains

THE DARLING LINE, 279TH MILE

48.61 Deep arroyo, course N.

65.60 Road, bears NE. and SW., a corral, bears S., about 3½ chs. dist.

73.50 Top of steep bluff.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 278 + 73.50 Chs., 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 20 ins. diam., bears N. 72½ E., 192 lks. dist., mkd. WP COLO BT.

A cedar, 8 ins. diam., bears S. 70¾ W., 45 lks. dist., mkd. WP NM BT.

Descend 70 ft. to point for corner.

79.94 The proportional point; the 279th Mi. Cor. destroyed (Carpenter 52nd Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 279, 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 12 ins. diam., bears S. 76½ W., 149 lks. dist., mkd. NM 279 M BT.

THE DARLING LINE, 280TH MILE

REESTABLISHMENT

S. 89 57 W., on a reestablishment of the 280th mile.

Ascend 100 ft.

1.66 Bend of McDermott Arroyo, course from NE. turning to NW.; left bank near line.

4.66 North, 16 lks. dist.; a sandstone, 6x6x12 ins., firmly set in the ground, no marks. This location is near the record position for the closing cor. of secs. 23 and 24, T. 32 N., R. 12 W., NM Prin. Mer., Colorado, and secs. 8 and 9, T. 32 N., R. 12 W., New Mexico.

16.68 McDermott Arroyo, 1 ch. wide, course S. 60 W

Chains

THE DARLING LINE, 280TH MILE

27.60 Top of spur, slopes S.

34.76 Arroyo, course S. 60 E.; begin steep ascent of 215 ft.

48.08 The Carpenter 51st Mi. Cor. bears North, 6.35 chs. dist.; an iron post; I remove this monument and obliterate the marks on the remaining bearing tree.

69.86 Top of ridge, bears N. and S.

78.40 Begin steep descent of 85 ft. to gulch.

79.94 Darling's 280th Mi. Cor.; a sandstone boulder, 30x36x14 ins., mkd. with X near top center. This was the last original Darling monument to be identified East of Darling's Astronomical Monument No. 10. Did not seat a tablet in boulder to avoid obliterating original mark.

THE DARLING LINE, 281ST MILE

RETRACEMENT

West, on a retracement of the Darling boundary.

80.00 The 281st Mi. Cor. has become obliterated.

160.00 The 282nd Mi. Cor. has become obliterated.

240.00 The 283rd Mi. Cor. has become obliterated.

320.00 The 284th Mi. Cor. has become obliterated.

400.00 The 285th Mi. Cor. has become obliterated.

481.95 The closing cor. of secs. 7 and 8, Tps. 32 N., R. 13 W., Colorado and New Mexico, bears South, 5 lks. dist. The record shows that the position of Darling's 286th Mi. C[illegible] should be West, 1.50 chs. from this closing corner.

483.45 South, 5 lks. dist.; the record position of Darling's 286th Mi. Cor.; on this determination the true line bears West.

REESTABLISHMENT

Thence from the 280th Mi. Cor. West, on a reestablishment of the 281st mile.

Descend 85 ft. on W. slope to gulch.

Chains THE DARLING LINE, 281ST MILE

2.54 Portal of coal mine, bears N., 30 lks. dist.

5.22 Coal mine tipple, bears S., 1.50 chs. dist.
Gulch bottom, white sandstone, course S. 30 W.; begin ascent of E. slope, through cedar and pinon timber and service brush.

5.52 Road, bears N. and S.

6.00 Well, bears S., approximately 3 chs. dist.

7.30 Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 280 + 7.30 Chs., 1868-1925;
from which
A cedar, 14 ins. diam., bears N. 64° E., 16 lks. dist., mkd. WP COLO BT.
A cedar, 20 ins. diam., bears S. 17 W., 13 lks. dist., mkd. WP NM BT.

44.77 The Carpenter 50.05 Mi. Cor. bears North, 6.17 chs. dist.; an iron post; I remove this monument.

49.67 Sandstone bluff, bears NE. and SW.
Set tablet in solid rock, marked Mile Corner No. 280 + 49.67 Chs., 1868-1925, and build a mound of stone on tablet;
from which
A cedar, 14 ins. diam., bears S. 2 E., 36 lks. dist., mkd. WP NM BT.
Abrupt descent of 200 ft. over W. face of bluff to valley.

61.10 Deep arroyo, 20 lks. wide, course S.

64.00 Center of arroyo, 2 chs. wide, course S.

66.00 Road, bears N. and S.

72.10 Arroyo, 70 lks. wide, course SE.

80.25 The proportional point, based upon the Darling field note calls between the 280th and 283rd mile stations; the Darling 281st Mi. Cor. destroyed (Carpenter 50th Mi.).
Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 281, 1868-1925;
from which

Chains

THE DARLING LINE, 281ST MILE

A cedar, 16 ins. diam., bears S. 6½ E., 19 lks. dist., mkd. NM 281 M BT.

A cedar, 18 ins. diam., bears N. 5 W., 27 lks. dist., mkd. COLO 281 M BT.

The original Darling stone was found North, 23 lks. dist.; a broken sandstone, lying on ground, mkd. 8 on one face, other marks illegible. Unable to determine the original position of the sandstone.

Set remains of this stone alongside concrete monument.

THE DARLING LINE, 282ND MILE

REESTABLISHMENT

West, on a reestablishment of the 282nd mile.

Ascend 200 ft. over broken country, through cedar and pinon timber.

49.12 The Carpenter 49th Mi. Cor. bears North, 6.02 chs. dist.; an iron post; I remove this monument.

67.00 Arroyo, course N. 30° E.

80.25 The proportional point, based upon the Darling field note calls between the 280th and 283rd mile stations; the Darling 282nd Mi. Cor. destroyed (Carpenter 49th Mi.).

Construct a concrete monument, in a form 8x11x18 ins., set 20 ins. in the ground, with tablet seated in the top marked Mile Corner No. 282, 1868-1925, and build a large mound of stone over the monument;

from which

A cedar, 18 ins. diam., bears S. 67° W., 31 lks. dist., mkd. NM 282 M BT.

A cedar, 8 ins. diam., bears N. 45½ W., 33 lks. dist., mkd. COLO 282 M BT.

THE DARLING LINE, 283RD MILE

REESTABLISHMENT

West, on a reestablishment of the 283rd mile.

Ascend 67 ft. on N. slope, through cedar and pinon timber.

Chains THE DARLING LINE, 283RD MILE

24.50 Top of ascent; begin descent of 130 ft.

43.00 Leave timber; enter sage brush.

48.75 The Carpenter 48th Mi. Cor. bears North, 6.06 chs. dist.; an iron post; I remove this monument and obliterate the marks on the remaining bearing tree.

70.80 Fork of two arroyos, course SW.; bottom of descent; ascend 63 ft. to point for corner.

79.59 Darling's 283rd Mi. Cor. found South, 62 lks. dist., part of a broken sandstone, lying on ground, mkd. C., NM., 180, 283 on opposite faces. Other piece found West, about 1 ch. dist., mkd. with part of 8 of 1868.

80.25 The proportional point, based upon the Darling field note calls between the 280th and 283rd mile stations; the Darling 283rd Mi. Cor. destroyed (Carpenter 48th Mi.).

Construct a concrete monument, in a form 8x14x36 ins., set 26 ins. in the ground, with tablet seated in the top marked Mile Corner No. 283, 1868-1925;

from which

A cedar, 10 ins. diam., bears N. 78½ E., 129 lks. dist., mkd. COLO 283 M BT.

A cedar, 8 ins. diam., bears S. 71½ W., 137 lks. dist., mkd. NM 283 M BT.

Original Darling 283rd Mi. Cor. set in concrete base North of concrete monument.

THE DARLING LINE, 284TH MILE

REESTABLISHMENT

West, on a reestablishment of the 284th mile.

Descend 45 ft. through sage brush.

7.40 Small draw, course S. 60° W.

16.75 Descend 75 ft. to valley floor.

18.90 Irrigation ditch, course S.

19.75 Road, from Durango, Colorado, to Farmington, New Mexico, bears N. and S.

Chains THE DARLING LINE, 284TH MILE

20.40 Construct a concrete monument, in a form 16x24x36 ins., set 28 ins. in the ground, with tablet seated in the top marked Mile Corner No. 283 + 20.40 Chs., 1868-1925.

from which

An oak, 4 ins. diam., bears N. 31 W., 51 lks. dist., mkd. BT.

Elevation of the tablet is 5997.375 ft. above sea level.

20.50 Telephone line, bears N. and S.

Wire fence, bears N. and S.; enter cultivated land.

22.41 The Carpenter 47.375 Mi. Cor. bears North, 6.03 chs. dist.; an iron post; and is a U. S. Geological Survey Bench Mark, elevation stamped in monument cap, 6000.000 ft. I destroyed the marks on the cap identifying the post as a Carpenter boundary marker preserving its other functions.

25.65 Farm lane, bears N. and S.

28.15 Center of La Plata River, 30 lks. wide, course S.; Colorado Engineering Department Gauging Station and foot bridge.

28.75 Enter cultivated fields, N. and S.

59.45 Wire fence, bears N. and S.; leave cultivated fields; enter sage brush.

60.25 Irrigation ditch, course S.

63.00 Farm road, bears N. and S.

65.50 Begin ascent of 125 ft. out of valley.

71.00 Top of low ridge, bears N. and S.

76.00 Top of ascent; descend 34 ft. to point for corner.

80.90 The proportional point, based on the Darling field note calls between the 283rd and 286th mile stations: Darling's 284th Mi. Cor. destroyed (Carpenter 48th Mj.).

Construct a concrete monument, in a form 8x14x36 ins., set 28 ins. in the ground, with tablet seated in the top marked Mile Corner No. 284, 1868-1925, and build a large mound of stone around the monument;

from which

A cedar, 6 ins. diam., bears S. 52¾ E., 8 lks. dist., mkd: NM 284 M BT.

A cedar, 8 ins. diam., bears N. 24½ W., 32 lks. dist., mkd. COLO 284 M BT.

THE DARLING LINE, 285TH MILE

Chains *REESTABLISHMENT*

West, on a reestablishment of the 285th mile.
Descend on rocky S. slope; through sage brush.

11.15 Arroyo, 35 lks. wide, course S. 60 E.; ascend 85 ft. on NW. slope.

22.65 Top of ridge, bears NE. and SW.; begin descent of 40 ft.

29.30 Arroyo, 15 lks. wide, course N. 30 E.; ascend 150 ft., through dense cedar and pinon timber.

46.67 The Carpenter 46th Mi. Cor. bears North, 0.15 chs. dist.; an iron post; I remove this monument and obliterate the marks on the remaining bearing tree.

49.55 Road, bears NW. and SE.; top of ascent; begin descent of 25 ft.

63.55 Graded road, bears N. 30 W. and S. 30 E.

64.00 Construct a concrete monument, in a form 8x14x36 ins., set 28 ins. in the ground, with tablet seated in the top marked Mile Corner No. 284 + 64.00 Chs., 1868-1925;

from which

A cedar, 18 ins. diam., bears S. 67¾ W., 49 lks. dist., mkd. WP NM BT.

A cedar, 8 ins. diam., bears N. 48½ W., 39 lks. dist., mkd. WP COLO BT.

Ascend 95 ft. to point for corner.

80.90 The proportional point, based on the Darling field note calls between the 283rd and 286th mile stations; unable to identify Darling's 285th Mi. Cor.

Construct a concrete monument, in a form 8x11x18 ins., set 14 ins. in the ground, with tablet seated in the top marked Mile Corner No. 285, 1868-1925, and build a large mound of stone around the monument;

from which

A cedar, 14 ins. diam., bears S. 23½ E., 28 lks. dist., mkd. NM 285 M BT.

A cedar, 18 ins. diam., bears N. 52¾ W., 17 lks. dist., mkd. COLO 285 M BT.

The Darling Line, 286th Mile

Chains *REESTABLISHMENT*

West, on a reestablishment of the 286th mile.

Ascend 210 ft., through dense cedar and pinon timber.

40.50 S. end of open stone flat, about 3½ acres.

42.35 E. wall of rocky gulch, course SE.

47.02 The Carpenter 45th Mi. Cor. bears North, 6.06 chs. dist., an iron pipe; I remove this monument and obliterate the marks on the three bearing trees.

49.40 W. wall of rocky gulch.

59.00 E. rim of canon, about 2½ chs. S. of the head, course SE.

63.80 W. rim of above canon.

68.35 E. cliff of deep canon, course SE.

78.80 W. cliff of above canon.

79.40 The closing cor. of secs. 7 and 8, T. 32 N., R. 13 W., NM Prin. Mer., Colorado, bears South, 5 lks. dist., a sandstone, 10x4x14 ins., set in mound of stone, mkd. C on N., 5 grooves on E., and 1 groove on W. face.

80.90 Position of the original Darling 286th Mi. Cor.; the location in departure as derived from the record of the above described closing corner.

Construct a concrete monument, in a form 8x11x18 ins., set on top of flat rock, against a sandstone ledge, with tablet seated in the top marked Mile Corner No. 286, 1868-1925, and build a large mound of stone around the monument;

from which

A cedar, 8 ins. diam., bears S. 55½ E., 25 lks. dist., mkd. NM 286 M BT.

A cedar, 8 ins. diam., bears N. 31½ W., 27 lks. dist., mkd. COLO 286 M BT.

The Darling Line, 287th Mile

RETRACEMENT

West, on a retracement of the Darling boundary.

80.00 The 287th Mi. Cor. has become obliterated.

Chains. THE DARLING LINE, 287TH MILE

160.00 The 288th Mi. Cor. has become obliterated

240.00 The 289th Mi. Cor. has become obliterated

275.00 The position for Darling's terminal point; on this determination the true line bears West

REESTABLISHMENT

Thence from the 286th Mi. Cor. West, on a reestablishment of the 287th mile.

Ascend gradually over rough and stony ground, through dense small cedar and pinon timber, ascend 280 ft. to top of slope.

18.00 Rim of deep canon, bears N. 60° W. and S. 60° E.

31.00 W. rim of canon.

45.40 The Carpenter 44th Mi. Cor. bears North, 6.07 chs. dist., an iron post; I remove this monument and obliterate the marks on the two bearing trees.

56.62 Intersect the east boundary of the Ute Mountain Indian Reservation as surveyed by C. R. Burt, U. S. Surveyor, in 1914.

North, 6.07 chs. dist., an iron post, 3 ins. diam., firmly set in mound of stone, with brass cap marked and witnessed as described in the official record; I did not disturb this monument.

76.60 The ruins of old Pueblo dwelling, bears N., 0.50 chs. dist.; descend 15 ft.

80.00 The position for the 287th Mi. Cor.; unable to identify Darling's monument.

Set a tablet in sandstone ledge, marked Mile Corner No. 287, 1868-1925;

from which

A cedar, 12 ins. diam., bears N. 26½° E., 14 lks. dist., mkd. COLO 287 M BT.

A cedar, 14 ins. diam., bears S. 64½° E., 34 lks. dist., mkd. NM 287 M BT.

Raise a mound of stone, 4 ft. base, 2 ft. high, 4 ft. W. of the tablet.

THE DARLING LINE, 288TH MILE

REESTABLISHMENT

West, on a reestablishment of the 288th mile.

Ascend 157 ft. over deep gulches and broken ridge spurs, draining and bearing SE., through dense cedar and pinon timber.

41.23 The Carpenter 43.05 Mi. Cor. bears North, 0.05 chs. dist., an iron post. I remove this monument and obliterate the marks on the four bearing trees.

76.00 Summit of high ridge, bears NW. and SE.

set a red brass tube, 3.5 ins. diam., 36 ins. long, 20 ins. in the ground on solid rock, with cap marked Mile Corner No. 287 76.00 Chs., 1868-1925, and build a mound of stone around the monument.

from which

A cedar, 6 ins. diam., bears N. 56½ E., 43 lks. dist., mkd. WP COLO BT.

A cedar, 16 ins. diam., bears S. 46½ E., 46 lks. dist., mkd. WP NM BT.

Descend 8 ft. to point for corner.

80.00 The position for the 288th Mi. Cor. unable to identify Darling's monument.

set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 288, 1868-1925, and build a mound of stone around the monument.

from which

A cedar, 12 ins. diam., bears N. 46½ E., 38 lks. dist., mkd. COLO 288 M BT.

A cedar, 8 ins. diam., bears S. 64 W., 57 lks. dist., mkd. NM 288 M BT.

THE DARLING LINE, 289TH MILE

REESTABLISHMENT

West, on a reestablishment of the 289th mile.

Descend 100 ft. through dense cedar and pinon timber.

0.50 E. rim of Little Barker Canon, bears N. and S., ascend 75 ft. over canon to a point on W. rim.

Chains

THE DARLING LINE, 289TH MILE

23.50 W. rim of canon, bears N. and S.; ascend 72 ft.

36.88 Descend 118 ft. to W. rim of gulch.

44.02 The Carpenter 42nd Mi. Cor. bears North, 6.05 chs. dist.; an iron post; I remove this monument and obliterate the marks on the two bearing trees.

53.00 E. rim of gulch, bears NW. and SE.

64.00 W. rim of gulch; ascend 70 ft. to point for corner.

64.13 South, 1 ch. dist.; road to gas well turns sharply.

80.00 The position for the 289th Mi. Cor.; unable to identify Darling's monument.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 289, 1868-1925;

from which

A cedar, 5 ins. diam., bears N. 52 W., 94 lks. dist., mkd. COLO 289 M BT.

A cedar, 8 ins. diam., bears S. 58 W., 126 lks. dist., mkd. NM 289 M BT.

Monument stands north of graded road, bearing SE. from high ridge.

THE DARLING LINE, 290TH MILE

REESTABLISHMENT

West, on a reestablishment of the 290th mile.

Ascend 128 ft. to top of ridge, through dense cedar and pinon timber.

14.50 Gulch, course N. 70 E.

27.40 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 289 + 27.40 Chs., 1868-1925, and build a mound of stone and earth around the monument;

from which

A cedar, 14 ins. diam., bears N. 20 E., 32 lks. dist., mkd. WP COLO BT.

A cedar, 12 ins. diam., bears S. 4 E., 41 lks. dist., mkd. WP NM BT.

Chains

THE DARLING LINE, 290TH MILE

27.80 Road, on summit of high ridge, bearing NW. and turning to S.; descend 15 ft.

35.00 The position for Darling's terminal point; Darling did not establish a monument.

Long-range bearings taken on Darling's tangent to the parallel

Center of a slide on distant mountain, bears N. 5° W.

Hay Stack peak, on distant sky line, bears N. 18° 10' W.

High point of Ute Mountain, conical form, bears N. 53° 15' W.

These long-range sights agree reasonably with the Darling record, and some of the calls of the field notes were found to be roughly accurate, but positions in departure were not sufficiently in agreement to justify any modification of the regular mile lengths of 80.00 chs.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 289 + 35.00 Chs.; 1868-1925, and build a mound of earth around the monument;

from which

A cedar, 12 ins. diam., bears N. 74½° E., 27 lks. dist., mkd. WP COLO BT.

cedar, 14 ins. diam., bears N. 22½° W., 85 lks. dist., mkd. WP COLO BT.

C O L O R A D

LA PLATA COUNTY

UTE MOUNTAIN INDIAN RESERVATION

SOUTH

T. 32 N., R. 13 W.

WEST 55.00 — WEST 80.00 — WEST 80.00 — WEST 80.00 — WEST 80.90 — WEST 80.90 — WEST 80.90

289 288 287 286 285 284

7 8 9 10

Canon

Little Barker

+35.00 +37.40 +76.00 +64.00 +20.40

Piedra

UTE MOUNTAIN INDIAN RESERVATION

T. 32 N., R. 13 W.

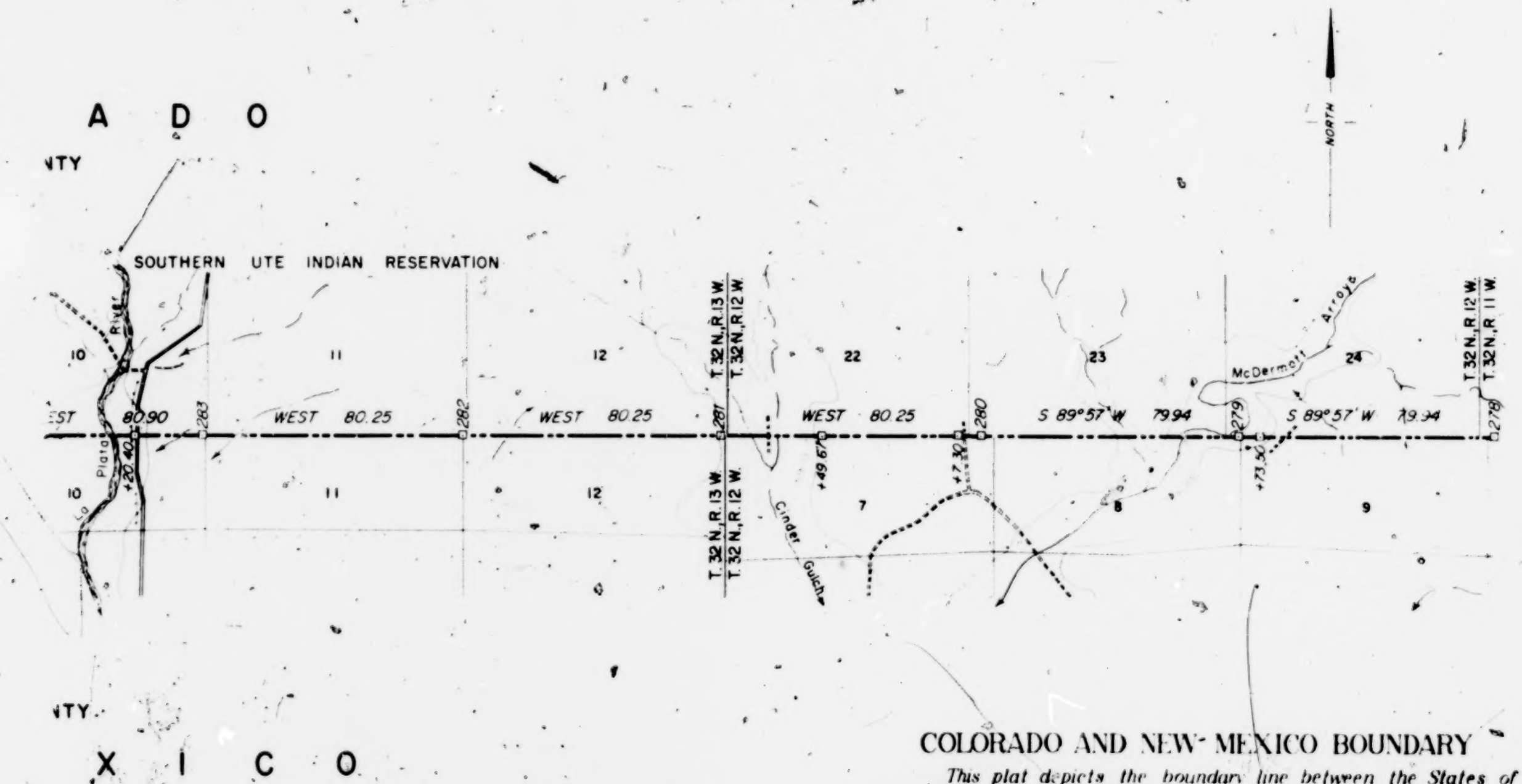
SAN J'JAN COUNTY

N E W . M E X I

SCALE

0 10 20 30 40

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 US 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph C. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 289 + 35

to

MILE CORNER No. 298

COLORADO AND NEW MEXICO BOUNDARY

The following portion of the Colorado and New Mexico boundary was deemed by Ehud N. Darling, in 1868, to be "impossible to survey," because of the numerous deep gorges and high, rugged cliffs. Darling did compute the bearing and distance from his Terminal Point to his Astronomical Monument No. 10, but until this survey the boundary has not been marked upon the ground.

COLORADO AND NEW MEXICO BOUNDARY

THE DARLING LINE, 290TH MILE TO 313TH MILE

Chains

RETRACEMENT

Thence from Mi. Cor. No. 289 + 35.00 Chs. S. 89° 55' W., on a retracement of the Darling boundary.

685.00 Thence on corrected bearing S. 89° 48' W., on a retracement of the Darling boundary.

1251.42 Darling's Astronomical Monument No. 10 bears N. 47 lks. dist.; on this determination the true line bears S. 89° 51' W.

THE DARLING LINE, 290TH MILE

Chains

ESTABLISHMENT

Thence from Mi. Cor. No. 289 + 35.00 Chs. S. 89° 51' W., continuing the establishment of the 290th mile with new measurement.

Descend 123 ft. over broken head of ravine to point for corner.

8.88 The Carpenter 41st Mi. Cor. bears North, 6.02 chs. dist., an iron post; I remove this monument and obliterate the marks on the two bearing trees.

45.00 Point for the 290th Mi. Cor.

Set ● red brass tube, 4 ins. diam., 36 ins. long, 4 ins. in the ground on bed rock, with cap marked Mile Corner No. 290, 1868-1925, and build a mound of stone and earth 6 ft. at the base around the monument;

from which

A cedar, 24 ins. diam., bears N. 53½° W., 17 lks. dist., mkd. COLO 290 M BT.

A cedar, 14 ins. diam., bears S. 36½° W., 29 lks. dist., mkd. NM 290 M BT.

THE DARLING LINE, 291ST MILE

ESTABLISHMENT

Thence from the 290th Mi. Cor. S. 89° 51' W., on an establishment of the 291st mile.

Descend 525 ft., through dense cedar and pinon timber.

11.98 E. ledge of NE. fork of Barker Canon; begin abrupt descent of 400 ft.

28.07 Bottom of descent; ascend 24 ft.

31.30 Top of ascent; descend 84 ft. to point for corner.

43.80 The Carpenter 40th Mi. Cor. bears North, 6.27 chs. dist., an iron post; I remove this monument.

73.01 Thence over bottom of NE. fork of Barker Canon.

80.00 The point for the 291st Mi. Cor. falls on the side of a low spur between two hillside washes; I did not establish this corner.

THE DARLING LINE, 292ND MILE

Chains

ESTABLISHMENT

S. 89° 51' W., on an establishment of the 292nd mile.
Ascend 10 ft. to point for monument.

0.90 Top of low spur between two hillside washes.
Set a tablet in sandstone ledge outcrop, marked Mile Corner No. 291 + 0.90 Chs., 1868-1925;
from which
A cedar, 8 ins. diam., bears N. 44½° W., 43 lks. dist., mkd. W. COLO BT.
A cedar, 14 ins. diam., bears S. 43½° W., 48 lks. dist., mkd. W. NM BT.
Build a mound of stone, 4 ft. base, 3 ft. high, 5 ft. west of monument.

3.33 Begin steep ascent of 498 ft. on E. slope over boulders, through scattering cedar and pinon timber.

19.60 Top of rim, near S. point of mesa, bears N. and S.

26.30 Top of rim, bears NW. and SE.; descend 384 ft. over SW. slope.

30.38 The Carpenter 39.167 Mi. Cor. bears North, 6.42 chs. dist.; an iron post; I remove this monument.

58.60 Thence over bottom of gulch, descend 79 ft. to point on E. slope.

67.90 Set a red brass tube, 3.5 ins. diam., 36 ins. long, 34 ins. in the ground to solid rock, with cap marked Mile Corner No. 291 + 67.90 Chs., 1868-1925, and build a mound of stone, 5 ft. base, to top and around the monument;
from which
A cross on a sandstone boulder, 10x6x4 ft. high, bears N. 20½° E., 18 lks. dist., mkd. BO.
A cross on a sandstone boulder, 10x5x4 ft. high, bears S. 34° W., 16 lks. dist., mkd. BO.
The monument stands north, 85 lks. dist., from a sandstone boulder 20x20x20 ft. high.
Ascend 443 ft. to a point in 293rd mile.

80.00 The point for the 292nd Mi. Cor. falls on steep SE. slope, under rim rock, and among large boulders; I did not establish this corner.

THE DARLING LINE, 293RD MILE

Chains

ESTABLISHMENT

S. 89° 51' W., on an establishment of the 293rd mile.
Ascend to top of rim rocks.

2.80 Top of steep ascent; rim rock bears N. and S.; thence over S. point of ridge, through dense cedar and pinon timber.
Descend 17 ft. to wall of canon.

6.30 Rim rock, bears N. and S.; E. wall of Barker Canon; thence by triangulation, from rim rock to rim rock, across canon.

32.14 Arroyo, in NE. fork of canon.

38.80 Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 292 + 38.80 Chs. 1868-1925.
No bearing trees or objects available.
Monument stands in valley land between two forks of Barker Canon.

45.69 The Carpenter 38th Mi. Cor. bears North, 6.69 chs. dist.; an iron post; I remove this monument.

48.74 Arroyo, in NW. fork of canon; abrupt ascent to point for corner.

80.00 The point for the 293rd Mi. Cor. falls on steep E. slope under rim rock and among large boulders. I did not establish this corner.

THE DARLING LINE, 294TH MILE

ESTABLISHMENT

S. 89° 51' W., on an establishment of the 294th mile.
Ascend over steep E. slope to top of rim rock on W. wall of canon.

1.45 Enter dense cedar and pinon timber.

2.50 Set a red brass tube, 3.5 ins. diam., 36 ins. long, 12 ins. in the ground to solid rock, with cap marked Mile Corner No. 293 + 2.50 Chs., 1868-1925, and build a mound of stone and earth, 5 ft. base, around the monument;
from which
A cedar, 14 ins. diam., bears N. 42½° E., 19 lks. dist., mkd. WP COLO BT.
A cedar, 6 ins. diam., bears S. 12½° E., 56 lks. dist., mkd. WP NM BT.

Chains

THE DARLING LINE, 294TH MILE

Monument stands on W. rim of NW fork of Barker Canon
Ascend 30 ft.

18.37 Top of ascent; descend 71 ft.

34.33 Thence over broken ground; descend 32 ft. to point for corner.

50.24 The Carpenter 37th Mi. Cor. bears North, 6.79 chs. dist.; an iron post; I remove this monument and obliterate the marks on the three bearing trees.

62.55 Unimproved road and stock driveway, bears NW. and SE.

63.10 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 293 + 63.10 Chs., 1868-1925, and build a mound of earth around the monument.

from which

A cedar, 18 ins. diam., bears N. 77½ W., 63 lks. dist., mkd. WP COLO BT.

A cedar, 6 ins. diam., bears S. 33½ W., 44 lks. dist., mkd. WP NM BT.

80.00 Point for the 294th Mi. Cor.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 294, 1868-1925, and build a mound of earth around the monument.

from which

A cedar, 36 ins. diam., bears N. 73½ E., 78 lks. dist., mkd. COLO 294 M BT.

A cedar, 14 ins. diam., bears S. 67½ W., 82 lks. dist., mkd. NM 294 M BT.

THE DARLING LINE, 295TH MILE

ESTABLISHMENT

S. 89° 51' W., on an establishment of the 295th mile.
Descend 106 ft. to point for corner.

47.09 Ravine, course NW.

50.56 The Carpenter 36th Mi. Cor. bears North, 6.77 chs. dist., an iron

Chains

THE DARLING LINE, 295TH MILE

post. I remove this monument and obliterate the marks on the two bearing trees.

80.00 Point for the 295th Mi. Cor.

Construct a concrete monument, in a form 8x14x36 ins., set 25 ins. in the ground, with tablet seated in the top marked Mile Corner No. 295, 1868-1925, and build a mound of earth around the monument;

from which

A cedar, 18 ins. diam., bears N. 54½ W., 67 lks. dist., mkd. COLO 295 M BT.

A cedar, 16 ins. diam., bears S. 27½ W., 67 lks. dist., mkd. NM 295 M BT.

THE DARLING LINE, 296TH MILE

ESTABLISHMENT

S. 89° 51' W., on an establishment of the 296th mile.

Descend 145 ft. to point for corner.

50.29 The Carpenter 35th Mi. Cor. bears North, 6.57 chs. dist.; an iron post; I remove this monument and obliterate the marks on the two bearing trees.

50.41 Ravine, course SW.

58.35 Same ravine, course NW.

80.00 Point for the 296th Mi. Cor.

Set a rock brass tube, 3.5 ins. diam., 36 ins. long, 18 ins. in the ground on bed rock, with cap marked Mile Corner No. 296, 1868-1925, and build a mound of stone and earth, 5 ft. base, around the monument;

from which

A cedar, 10 ins. diam., bears N. 9½ W., 81 lks. dist., mkd. COLO 296 M BT.

A cedar, 14 ins. diam., bears S. 14½ W., 30 lks. dist., mkd. NM 296 M BT.

The Darling Line, 297th Mile

Chains

ESTABLISHMENT

S. 89° 51′ W., on an establishment of the 297th mile.
Descend 20 ft. over broken ground to point for corner.

51.66 The Carpenter 34th Mi. Cor. bears North, 6.45 chs. dist.; an iron post; I remove this monument and obliterate the marks on the two bearing trees.

53.86 Ravine, course S.

80.00 Point for the 297th Mi. Cor.
Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 297, 1868-1925, and build a mound of stone and earth, 3 ft. base, around the monument;
from which
A cedar, 10 ins. diam., bears N. 39¼° E., 30 lks. dist., mkd. COLO 297 M BT.
A cedar, 10 ins. diam., bears S. 30¾° W., 51 lks. dist., mkd. NM 297 M BT.

The Darling Line, 298th Mile

ESTABLISHMENT

S. 89° 51′ W., on an establishment of the 298th mile.
Descend 105 ft., through dense cedar and pinon timber.

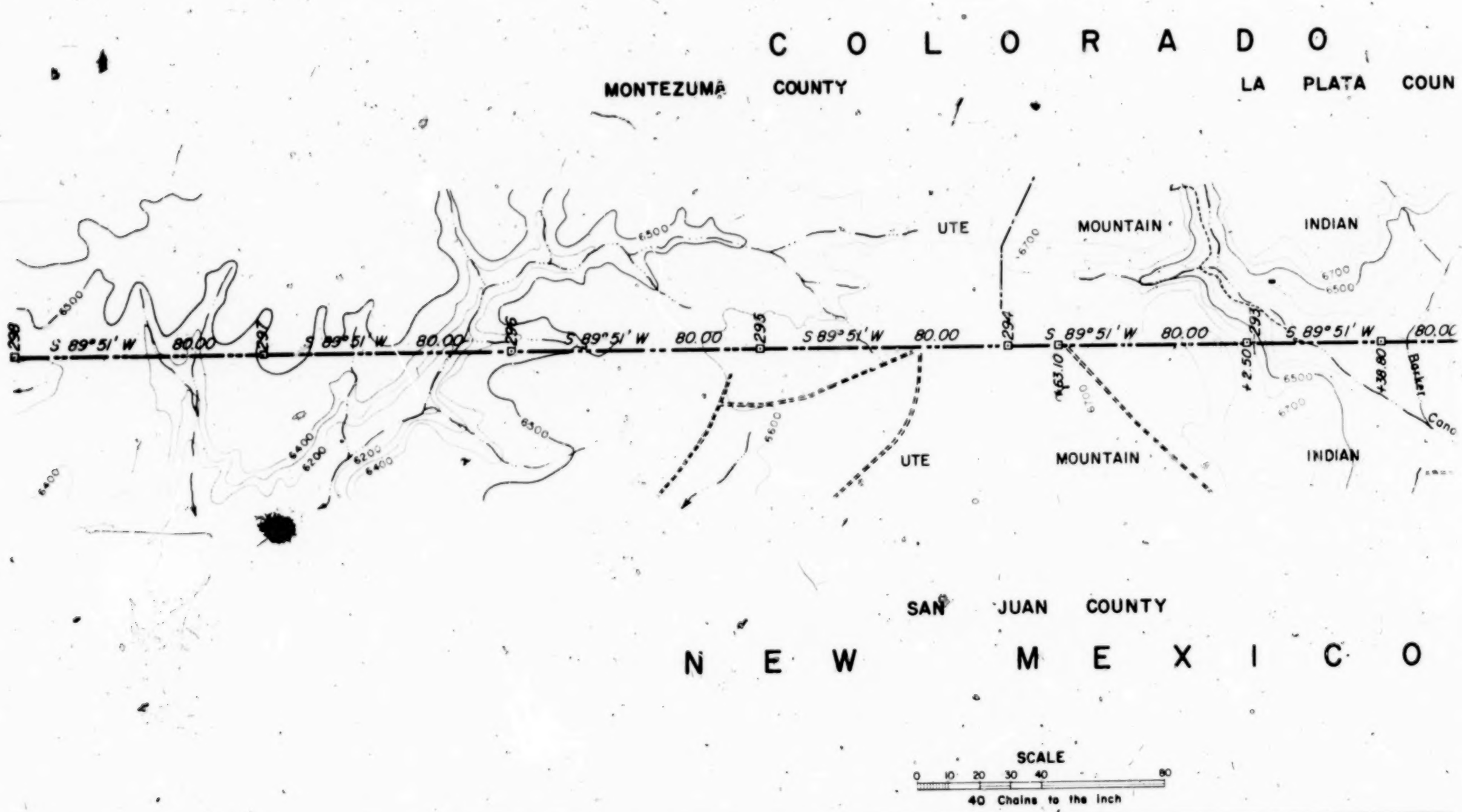
30.73 Thence over broken ground; descend 12 ft. to point for corner.

43.00 Leave cedar and pinon; enter sage brush.

50.55 The Carpenter 33rd Mi. Cor. bears North, 6.49 chs. dist.; an iron post; I remove this monument.

58.00 Leave sage brush; enter cedar and pinon timber.

80.00 Point for the 298th Mi. Cor.
Set a red brass tube, 3.5 ins. diam., 36 ins. long, 12 ins. in the ground to solid rock, with cap marked Mile Corner No. 298, 1868-1925, and build a mound of stone and earth, 5 ft. base, around the monument;
from which
A cedar, 20 ins. diam., bears N. 12¼° E., 57 lks. dist., mkd. COLO 298 M BT.
A cedar, bears S. 40½° W., 28 lks. dist., mkd. NM 298 M BT.



C O L O R A D O
MONTEZUMA COUNTY
LA PLATA COUN
UTE MOUNTAIN INDIAN
S 89°51' W 80.00
298
297
296
295
294
293
+63.10
+2.50
+38.80
Barker
Cano
6500
6400
6200
6700
6600
UTE MOUNTAIN INDIAN
SAN JUAN COUNTY
N E W M E X I C O
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40 Chains to the inch

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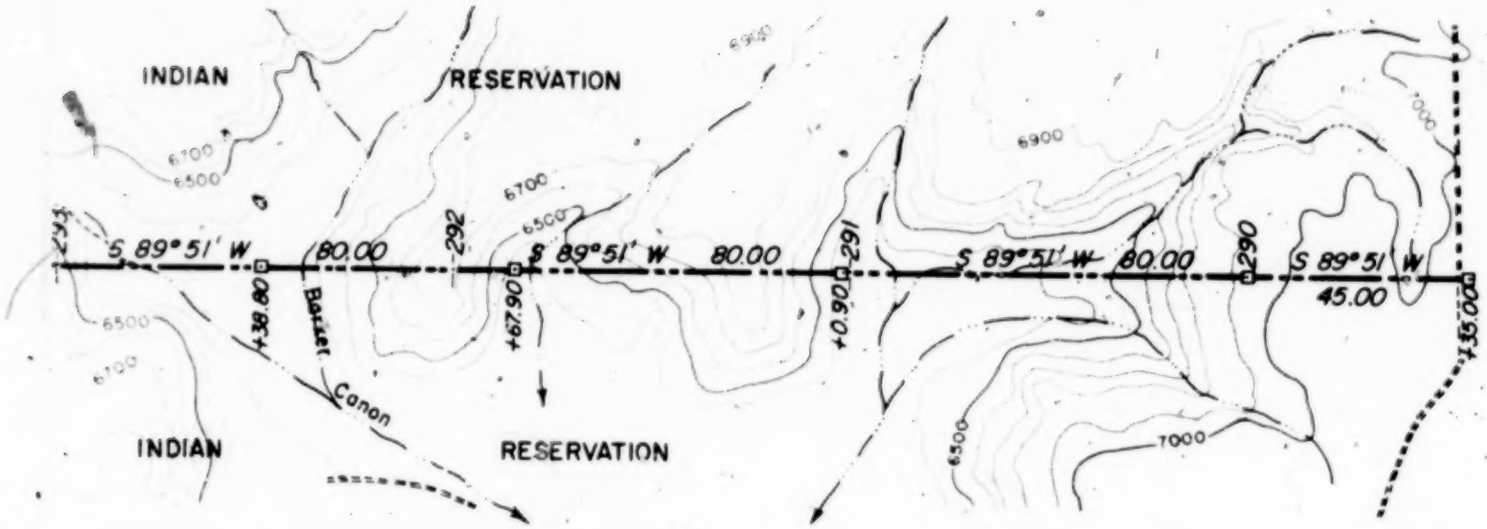


C O

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D. Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph B. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 298

to

MILE CORNER No. 306

COLORADO AND NEW MEXICO BOUNDARY

The following portion of the Colorado and New Mexico boundary was deemed by Ehud N. Darling, in 1868, to be "impossible to survey," because of the numerous deep gorges and high, rugged cliffs. Darling did compute the bearing and distance from his Terminal Point to his Astronomical Monument No. 10, but until this survey, the boundary has not been marked upon the ground.

COLORADO AND NEW MEXICO BOUNDARY

The Darling Line, 290th Mile to 313th Mile

Chains

RETRACEMENT

Thence from Mi. Cor. No. 289 + 35.00 Chs. S. 89° 55′ W., on a retracement of the Darling boundary.

685.00 Thence on corrected bearing S. 89° 48′ W., on a retracement of the Darling boundary.

1251.42 Darling's Astronomical Monument No. 10 bears N. 47 lks. dist.; on this determination the true line bears S. 89° 51′ W.

The Darling Line, 299th Mile

Chains *ESTABLISHMENT*

S. 89° 51′ W., on an establishment of the 299th mile.
Descend gradually through cedar and pinon timber, descending 55 ft. to point for corner.

51.27 The Carpenter 32nd Mi. Cor. bears North, 6.49 chs. dist.; an iron post; I remove this monument.

80.00 Point for the 299th Mi. Cor.
Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 299, 1868-1925:
from which
A cedar, 24 ins. diam., bears N. 10¾° W., 95 lks. dist., mkd. COLO 299 M BT.
A cedar, 24 ins. diam., bears S. 39° E., 28 lks. dist., mkd. NM 299 M BT.

The Darling Line, 300th Mile

ESTABLISHMENT

S. 89° 51′ W., on an establishment of the 300th mile.
Descend 28 ft., through cedar and pinon timber.

30.62 Top of cliff; descend 614 ft. to bottom of canon.

49.73 The Carpenter 31st Mi. Cor. bears North, 6.29 chs. dist.; an iron post; I remove this monument.

52.00 Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 299 + 52.00 Chs., 1868-1925, and build a mound of stone around the monument:
from which
A cross on ledge outcrop, bears N. 61° E., 160 lks. dist., mkd. BO.
A cedar, 10 ins. diam., bears S. 4½° E., 102 lks. dist., mkd. WP NM BT.
Monument stands in bottom of the NW. fork of Salt Creek Wash Canon.

55.40 Arroyo, in Salt Creek Wash Canon, course S. 30° W.
Ascend 675 ft. to top of spur in next mile.

Chains

THE DARLING LINE, 300TH MILE

80.00 Point for the 300th Mi. Cor.
Set a red brass tube, 3.5 ins. diam., 36 ins. long, 12 ins. in the ground to bed rock, with cap marked Mile Corner No. 300, 1868-1925, and build a mound of stone and earth, 5 ft. base, around the monument;
from which
A cedar, 10 ins. diam., bears N. 25° W., 46 lks. dist., mkd. COLO 300 M BT.
A pinon, 8 ins. diam., bears S. 30½° W., 25 lks. dist., mkd. NM 00 M BT.

THE DARLING LINE, 301ST MILE

ESTABLISHMENT

S. 89° 51′ W., on an establishment of the 301st mile.

13.00 Top of spur, bears S.; descend 575 ft. to gorge.

18.49 The Carpenter 30.408 Mi. Cor. bears North, 6.33 chs. dist. (computed); an iron post, on canon rim rock; I remove this monument.

39.92 Bottom of descent; ascend 588 ft., through scattering cedar and pinon timber, out of deep, rugged gorge, surrounded by high rim rock.
Set a red brass tube, 3.5 ins. diam., 36 ins. long, 12 ins. in the ground to solid rock, with cap marked Mile Corner No. 300 + 40.00 Chs., 1868-1925, and build a mound of stone and earth, 5 ft. base, around the monument;
from which
A cedar, 8 ins. diam., bears N. 27½° E., 39 lks. dist., mkd. WP COLO BT.
A cedar, 8 ins. diam., bears S. 56° E., 38 lks. dist., mkd. WP NM BT.
Monument stands on a bench in E. central part of large rugged "bowl" surrounded by high rim rock.

80.00 Point for the 301st Mi. Cor.
Set a red brass tube, 3.5 ins. diam., 36 ins. long, 8 ins. in the ground to bed rock, with cap marked Mile Corner No. 301, 1868-1925, and build a mound of stone and earth, 4 ft. base, around the monument;

Chains

THE DARLING LINE, 301ST MILE

from which

A cedar, 8 ins. diam., bears N. 10¼° E., 19 lks. dist., mkd. COLO 301 M BT.

A cedar, 20 ins. diam., bears S. 4½° E., 48 lks. dist., mkd. NM 301 M BT.

THE DARLING LINE, 302ND MILE

ESTABLISHMENT

S. 89° 51′ W., on an establishment of the 302nd mile.

Descend 12 ft. gradually over broken ground on high mesa to point for corner.

51.13 The Carpenter 29th Mi. Cor. bears North, 6.22 chs. dist.; an iron post; I remove this monument.

80.00 Point for the 302nd Mi. Cor.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 8 ins. in the ground to bed rock, with cap marked Mile Corner No. 302, 1868-1925, and build a mound of stone and earth, 5 ft. base, around the monument;

from which

A cedar, 24 ins. diam., bears N. 19° W., 57 lks. dist., mkd. COLO 302 M BT.

A cedar, 16 ins. diam., bears S. 74½° W., 30 lks. dist., mkd. NM 302 M BT.

Monument stands near the edge of a canon, bearing N. 60° E.

THE DARLING LINE, 303RD MILE

ESTABLISHMENT

Thence from the 302nd Mi. Cor. S. 89° 51′ W., on an establishment of the 303rd mile.

Ascend 45 ft. across canon and through cedar and pinon timber.

2.20 Canon, bears N. 60° E.

11.75 Descend 123 ft.

35.58 E. rim of deep rocky canon; ascend 83 ft. over canon to W. rim.

Chains THE DARLING LINE, 303RD MILE

37.67 The Carpenter 28.175 Mi. Cor. bears North, 6.22 chs. dist.; an iron post; I remove this monument. No bearing trees.

45.29 Intersect the west boundary of the Ute Mountain Indian Reservation as surveyed by C. R. Burt, U. S. Surveyor, in 1914.
The initial point of the survey bears North, 6.28 chs. dist.; an iron post, 3 ins. diam., firmly set in mound of stone, with brass cap marked and witnessed as described in the official record; I did not disturb this monument.

49.97 W. rim of canon, bears N.; ascend 50 ft. on high mesa, through cedar and pinon timber to point for corner.

80.00 Point for the 303rd Mi. Cor.
Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, marked Mile Corner No. 303, 1868-1925, and build a mound of earth, 3 ft. base, 6 ins. high, around the monument;
from which
A cedar, 6 ins. diam., bears N. 42½° W., 30 lks. dist., mkd. COLO 303 M BT.
A cedar, 14 ins. diam., bears S. 6° W., 39 lks. dist., mkd. NM 303 M BT.

THE DARLING LINE, 304TH MILE

ESTABLISHMENT

Thence from a point 1 chain S. of the 303rd Mi. Cor. S. 89° 51′ W., on an establishment of the 304th mile.
Ascend 13 ft.

5.00 Top of high ridge, bears NE. and SW.; descend 91 ft.

22.12 E. rim of deep rocky canon; ascend 100 ft. across canon.

26.00 Bottom of canon, 150 ft. deep, course NE.

35.65 Edge of shallow basin, course NE.

46.60 Descend 250 ft.

52.70 North, 1 chain to the true line.
Set a tablet in sandstone rim rock, marked Mile Corner No. 303 + 52.70 Chs., 1868-1925;

hains

THE DARLING LINE, 304TH MILE

from which

A cedar, 12 ins. diam., bears N. 03¼° E., 24 lks. dist., mkd. WP COLO BT.

A cedar, 24 ins. diam., bears S. 73½° E., 68 lks. dist., mkd. WP NM BT.

Raise a mound of stone, 3 ft. base, 3 ft. high, 4 ft. N. of tablet.

53.12 North, 1 chain to the true line; thence the Carpenter 27.015 Mi. Cor. bears North, 6.27 chs. dist.; an iron post; I remove this monument.

78.00 Ascend 184 ft. to a point in the 305th mile.

80.00 North, 1 chain to the true line; the point for the 304th Mi. Cor. falls in a deep wide gorge; I did not establish this corner.

THE DARLING LINE, 305TH MILE

ESTABLISHMENT

Thence from a point 1 chain S. of the point for the 304th Mi. Cor. S. 89° 51′ W., on an establishment of the 305th mile.

26.87 Spur and E. rim of canon, slopes NE.; descend 182 ft.

40.40 Ascend 413 ft. to a point in the 306th mile.

61.32 The Carpenter 25.912 Mi. Cor. has become obliterated.

75.20 North, 1 chain to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 18 ins. in the ground, with cap marked Mile Corner No. 304 + 75.20 Chs., and build a mound of stone and earth, 5 ft. base, around the monument;

from which

A cedar, 8 ins. diam., bears N. 59½° E., 78 lks. dist., mkd. WP COLO BT.

A cedar, 6 ins. diam., bears S. 27¼° W., 55 lks. dist., mkd. WP NM BT.

Monument stands on top of ridge on high mesa.

76.12 Top of rim rock, E. wall of deep wide gorge.

80.00 North, 1 chain to the true line; the point for the 305th Mi. Cor. falls on steep rocky slope; I did not establish this corner.

THE DARLING LINE, 306TH MILE

Chains *ESTABLISHMENT*

Thence from a point 1 chain S. of the point for the 305th Mi. Cor. S. 89° 51′ W., on an establishment of the 306th mile.

27.80 Descend 13 ft. gradually over rocky, broken ground through cedar and pinon timber, to point for corner.

55.04 North, 1 chain to the true line; thence the Carpenter 25th Mi. Cor. bears North, 6.65 chs. dist.; an iron post; I remove this monument.

60.08 North, 1 chain to the true line; thence the U. S. Coast and Geodetic Survey station "Dove," bears South, 23.39 chs. dist.; a sandstone, 8x8x10 ins. above ground with tablet marked "Dove," 1936.

80.00 North, 1 chain to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 12 ins. in the ground on bed rock, with cap marked Mile Corner No. 306, 1868-1925, and build a mound of stone and earth, 4 ft. base, around the monument;

from which

A cedar, 12 ins. diam., bears N. 11° E., 65 lks. dist., mkd. COLO 306 M BT.

A cedar, 18 ins. diam., bears S. 52¾° E., 18 lks. dist., mkd. NM 306 M BT.

Monument stands on western-most ridge of high mesa.

C O L O R A D O

MONTEZUMA COUNTY

UTE MOUNTAIN INDIAN RESERVATION

306 S 89° 51' W 80.00 305 +75.20 S 89° 51' W 80.00 304 +52.70 S 89° 51' W 80.00 303 S 89° 51' W 80.00 302 S 89° 51' W 80.00 301 S 89° 51' W 80

Burr Initial Point

+40.00

USC & GS "DOVE"

NAVAJO INDIAN RESERVATION

UTE MOUNTAIN

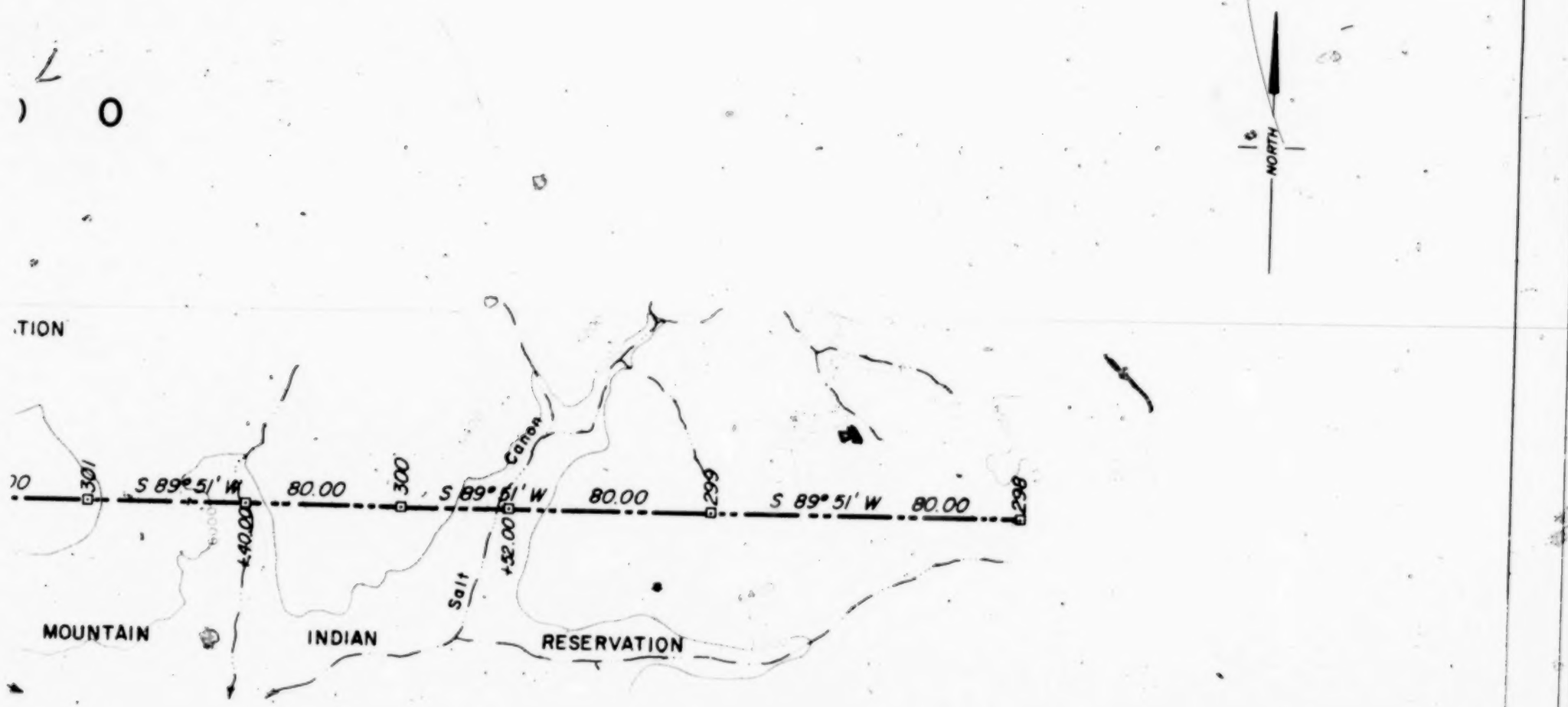
SAN JUAN COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

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Joseph B. Thoma

Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 306

to

MILE CORNER No. 313 + 17.08

COLORADO AND NEW MEXICO BOUNDARY

The following portion of the Colorado and New Mexico boundary was deemed by Ehud N. Darling, in 1868, to be "impossible to survey," because of the numerous deep gorges and high, rugged cliffs. Darling did compute the bearing and distance from his Terminal Point to his Astronomical Monument No. 10, but until this survey, the boundary has not been marked upon the ground.

COLORADO AND NEW MEXICO BOUNDARY

The Darling Line, 290th Mile to 313th Mile

Chains

RETRACEMENT

Thence from Mi. Cor. No. 289 + 35.00 Chs. S. 89° 55′ W., on a retracement of the Darling boundary.

785.00 Thence on corrected bearing S. 89° 48′ W., on a retracement of the Darling boundary.

1251.42 Darling's Astronomical Monument No. 10 bears N. 47 lks. dist.; on this determination the true line bears S. 89° 51′ W.

THE DARLING LINE, 307TH MILE

Chains *ESTABLISHMENT*

Thence from a point 1 chain S. of the 306th Mi. Cor. S. 89° 51' W., on an establishment of the 307th mile.

Descend 38 ft. over nearly level NW. point of high mesa, through cedar and pinon timber.

9.98 North, 1 chain to the true line; rim rock, top of high wall on westernmost ridge of high mesa.

Set a tablet in sandstone ledge, marked Mile Corner No. 306 + 9.98 Chs., 1868-1925;

from which

A cedar, 12 ins. diam., bears N. 70¼° E., 11.5 lks. dist., mkd. WP, COLO BT.

Raise a mound of stone, 3 ft. base, 3 ft. high, 3 ft. E. of tablet.

10.16 Descend 913 ft. to a point in the 308th mile.

55.08 North, 1 chain to the true line; thence the point for the Carpenter 24th Mi. Cor. bears North, 7.32 chs. dist.; search E. and W. but unable to find any trace of the monument.

80.00 North, 1 chain to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 307, 1868-1925, and build a mound of stone and earth, 4 ft. base, around the monument.

No bearing trees or objects available.

THE DARLING LINE, 308TH MILE

ESTABLISHMENT

Thence from a point 1 chain S. of the 307th Mi. Cor. S. 89° 51' W., on an establishment of the 308th mile.

3.20 Descend 111 ft. across lower mesa, through scattering cedar and pinon timber.

8.20 E. side of fork of unimproved roads; roads bear S. 30° E., N. 60° W., and N. 30° W.

North, 1 chain to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 307 + 8.20 Chs.,

Chains

THE DARLING LINE, 308TH MILE

1868-1925, and build a mound of stone and earth around the monument.

No bearing trees or objects available.

52.93 Picture Rock, bears N. 46° 45' E.

55.00 North, 1 chain to the true line; thence from points 7.40 and 8.40 chs. North, search E. and W., 10 to 15 chs. dist.; unable to find any trace of the Carpenter 23rd Mi. Cor.

65.09 Descend 48 ft. over deep canon, walled in by rim rock, to a point in the 309th mile.

80.00 North, 1 chain to the true line; the point for the 308th Mi. Cor. falls in deep rocky canon; I did not establish this corner.

THE DARLING LINE, 309TH MILE

ESTABLISHMENT

Thence from a point 1 chain S. of the point for the 308th Mi. Cor. S. 89° 51' W., on an establishment of the 309th mile.

Ascend left wall of canon, bearing N. 80° W.

11.00 North, 1 chain to the true line.

Set a tablet in top of sandstone ledge, marked Mile Corner No. 308 + 11.00 Chs., 1868-1925;

from which

A cedar, 10 ins. diam., bears N. 45° W., 57 lks. dist., mkd. WP COLO BT.

A cedar, 6 ins. diam., bears S. 47° E., 61 lks. dist., mkd. WP NM BT.

Raise a mound of stone, 4 ft. base, 2 ft. high, 9 lks. E. of tablet.

Monument located on W. side of deep canon; descend 141 ft.

19.46 Picture Rock, bears N. 59° 35' E.

77.60 Ascend 26 ft. to top of spur in 310th mile.

80.00 North, 1 chain to the true line; the point for the 309th Mi. Cor. falls in deep rocky canon; I did not establish this corner.

THE DARLING LINE, 310TH MILE

Chains *ESTABLISHMENT*

Thence from a point 1 chain S. of the point for the 309th Mi. Cor. S. 89° 51′ W., on an establishment of the 310th mile.

Ascend to top of spur.

5.00 North, 1 chain to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 3 ins. in the ground to bed rock, with cap marked Mile Corner No. 309 + 5.00 Chs., 1868-1925, and build a mound of stone, 5 ft. base, 2.5 ft. high, around the monument;

from which

A pinon, 10 ins. diam., bears N. 33° W., 37 lks. dist., mkd. WP COLO BT.

A cedar, 14 ins. diam., bears S. 65° E., 42 lks. dist., mkd. WP NM BT.

Monument stands on top of spur; descend 187 ft.

26.20 Wash, course SW.

27.50 North, 1 chain to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 309 + 27.50 Chs., 1868-1925, and build a mound of stone, 3 ft. base, around the monument.

No bearing trees or objects available.

27.90 Road, bears NE and SW.

57.60 The Carpenter 20.95 Mi. Cor.: a pile of stone, none marked, no iron post; I obliterate the remnants of this monument.

Ascend 275 ft.

65.90 Thence over gently rolling mesa, with scattering cedar and pinon timber; ascend 15 ft. to point for corner.

80.00 North, 1 chain to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 310, 1868-1925, and build a mound of stone around the monument;

from which

A cedar, 10 ins. diam., bears N. 42¾° W., 88 lks. dist., mkd. COLO 310 M BT.

Chains

THE DARLING LINE, 310TH MILE

A cedar, 16 ins. diam., bears S. 40° E., 75 lks. dist., mkd. NM 310 M BT.

THE DARLING LINE, 311TH MILE

ESTABLISHMENT

Thence from a point 1 chain S. of the 310th Mi. Cor. S. 89° 51½ W., on an establishment of the 311th mile.

Over gently rolling mesa, through scattering cedar and pinon timber; descend 37 ft. to rim of mesa.

32.56 E. side of cove in the S. rim of mesa.

46.40 North, 1 chain to the true line.

Set a tablet in sandstone outcrop, marked Mile Corner No. 310 + 46.40 Chs., 1868-1925;

from which

A cedar, 12 ins. diam., bears N. 75° E., 70 lks. dist., mkd. WP COLO BT.

A cedar, 6 ins. diam., bears S. 54¼° E., 14 lks. dist., mkd. WP NM BT.

Raise a mound of stone, 3 ft. base, 1.5 ft. high, 3 ft. W. of tablet.

Monument located on north side of main canon, on a cliff on the west side of large cove.

53.69 North, 1 chain to the true line; thence the Carpenter 20th Mi. Cor. and Astronomical Monument No. 1 bears North, 7.70 chs. dist.; a sandstone, 12x12x36 ins., firmly set and dressed on all four sides, marks obliterated; I destroy the monument and obliterate the marks on the three bearing trees.

64.60 North, 1 chain to the true line.

Set a tablet in sandstone outcrop, marked Mile Corner No. 310 + 64.60 Chs., 1868-1925;

from which

A cedar, 10 ins. diam., bears N. 55° W., 33 lks. dist., mkd. WP COLO BT.

A cedar, 6 ins. diam., bears S. 77½° E., 51 lks. dist., mkd. WP NM BT.

Raise a mound of stone, 3 ft. base, 1.5 ft. high, 3 ft. E. of the tablet.

Chains

THE DARLING LINE, 311TH MILE

Monument stands on west rim of high mesa, bearing NW. and SE.; abrupt descent.

80.00 North, 1 chain to the true line; the point for the 311th Mi. Cor. falls on side of rocky cliff; I did not establish this monument.

THE DARLING LINE, 312TH MILE

ESTABLISHMENT

Thence from a point 1 chain S. of the point for the 311th Mi. Cor. S. 89° 51′ W., on an establishment of the 312th mile.

14.50 North, 1 chain to the true line; thence from a point 8.50 chs. N. of the true line S. 89° 51′ W. continuing the establishment of the 312th mile.

16.10 South, 8.50 chs. to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 311 + 16.10 Chs., 1868-1925, and build a mound of stone, 3 ft. base, around the monument.

No bearing trees or objects available.

54.20 South, 8.50 chs. to the true line; thence the Carpenter 19th Mi. Cor. bears North, 7.70 chs. dist.; an iron post; I remove this monument.

80.00 South, 8.50 chs. to the true line; the point for the 312th Mi. Cor. falls on steep N. slope below high mesa; I did not establish this corner.

THE DARLING LINE, 313TH MILE

ESTABLISHMENT

Thence from a point 8.50 chs. N. of the point for the 312th Mi. Cor. S. 89° 51′ W., on an establishment of the 313th mile.

21.40 South, 8.50 chs. to the true line.

Set a red brass tube, 3.5 ins. diam., 36 ins. long, 24 ins. in the ground, with cap marked Mile Corner No. 312 + 21.40 Chs.,

Chains

THE DARLING LINE, 313TH MILE

1868-1925, and build a mound of stone and earth, 3 ft. at the base, around the monument.

No bearing trees or objects available.

Monument stands on ridge sloping north, at foot of high mesa on south.

54.47 South, 8.50 chs. to the true line; thence the Carpenter 18th Mi. Cor. bears North, 7.64 chs. dist.; an iron post; I remove this monument.,

114.34 South, 8.50 chs. to the true line.

Set a tablet in sloping rim rock, on northern-most edge of mesa, marked Mile Corner No. 313, 1868-1925.

No bearing trees or objects available.

Raise a mound of stone, 2 ft. base, 2 ft. high, 3 ft. S. of tablet.

THE DARLING LINE, 314TH MILE

ESTABLISHMENT

Thence from a point 8.50 chs. N. of the 313th Mi. Cor. S. 89° 51' W., on an establishment of the 314th mile.

2.52 South, 8.50 chs. to the true line.

Set a tablet in the top of rim rock, marked Mile Corner No. 313 + 2.52 Chs., 1868-1925.

No bearing trees or objects available.

Raise a mound of stone, 2 ft. base, 2 ft. high N. of tablet.

Monument stands on extreme western point of high mesa, overlooking boundary line westward to the corner of four States: Arizona, Colorado, New Mexico, and Utah.

17.08 South, 8.50 chs. to the true line.

Darling's Astronomical Monument No. 10; a sandstone boulder, 10x18x9 ft. high, mkd. Colorado on N., and 1868 on E., cross in top of the boulder, other marks obliterated.

In center of cross

Set a tablet, marked Mile Corner No. 313 + 17.08 Chs., 1868-1925; from which

A large boulder, bears N. 34° W., 140 lks. dist.

A large boulder, bears S. 34° W., 140 lks. dist.

Monument stands 2.90 chs. E. of the foot of a steep slope below the NW. point of the western-most high cliff of the Mesa Verde.

C O L O R A D O

MONTEZUMA COUNTY

ASTRONOMICAL MON. No. 10

S 89° 51' W 17.08

+17.08 313 +2.52

S 89° 51' W 114.34

+21.40 312

S 89° 51' W 80.00

+16.10 311

S 89° 51' W 80.00

+64.60 +46.40 310

S 89° 51' W 80.00

+27.50 309 +5.00

S 89° 51' W 80.00

+11.00 308

T. 32 N., R. 17 W.

20 21 22 23 24

UTE MOUNTAIN INDIAN RESERVATION

NAVAJO INDIAN RESERVATION

SAN JUAN COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch

D O

RVATION

I C O

COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph B. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 313 + 17.08

to

MILE CORNER No. 322

THE DARLING LINE, 314TH MILE

Chains *RETRACEMENT*

N. 89° 54′ W., along a trial line, retracing the Darling boundary on a transit line describing the secant, which starts from a point 0.85 lks. S. of Darling's Astronomical Monument No. 10, and bears N. 89° 55.5′ W.

62.92 N., 4 lks. to the trial line; the 314th Mi. Cor. has become obliterated.

Deflect 0° 4′ N., and continue on a transit line describing the secant, which bears N. 89° 52′ W.

142.92 On the trial line; the 315th Mi. Cor. has become obliterated.

222.92 S., 2 lks. to the trial line; the 316th Mi. Cor. has become obliterated.

302.92 S., 3 lks. to the trial line; the 317th Mi. Cor. has become obliterated.

382.92 S., 2 lks. to the trial line; the 318th Mi. Cor. has become obliterated.

462.92 On the trial line; the 319th Mi. Cor. has become obliterated.

542.92 N., 4 lks. to the trial line; the 320th Mi. Cor. has become obliterated.

Deflect 0° 4′ N., and continue on a transit line describing the secant, which bears N. 89° 52′ W.

563.54 Darling's bearing objects:

Mountains on W. side of Rio Colorado, bears N. 50° 45′ W. (Record: N. 51° W.)

West end of mountains, bears N. 32° 45′ W. (Record: N. 33° W.)

Abutment, bears N. 59° E. (Record: N. 59° E.)

Perpendicular cliff, bears S. 74° 45′ E. (Record: S. 75½° E.)

Perpendicular cliff, bears S. 73° E. (Record: S. 72½° E.)

Shiprock, bears S. 6° 45′ E. (Record: S. 7° E.)

Conical peak on Tunichi Mountains, bears S. 10° 15′ W. (Record: S. 10° W.)

Conical peak on Tunichi Mountains, bears S. 16° 45′ W. (Record: S. 13½° W.)

Highest point on mountain range, bears S. 53° W. (Record: S. 52½° W.)

Chains

THE DARLING LINE, 314TH MILE

Conical peak on Sierra La Platte, bears N. 36 30' E.
(Record: N. 37 E.)

622.92 On the trial line: the 321st Mi. Cor. has become obliterated.

702.92 S., 2 lks. to the trial line; the 322nd Mi. Cor. has become obliterated.

782.92 S., 3 lks. to the trial line; the 323rd Mi. Cor. has become obliterated.

862.92 S., 2 lks. to the trial line; the 324th Mi. Cor. has become obliterated.

942.92 On the trial line; the 325th Mi. Cor. has become obliterated.

1022.92 N., 4 lks. to the trial line; the 326th Mi. Cor. has become obliterated.

Deflect 0 4' N., and continue on a transit line describing the secant, which bears N. 89 52' W.

1102.92 On the trial line; the 327th Mi. Cor. was not established by Darling.

1182.92 S., 2 lks. to the trial line; the 328th Mi. Cor. has become obliterated.

1262.92 S., 3 lks. to the trial line; the 329th Mi. Cor. has become obliterated.

1342.92 S., 2 lks. to the trial line; the 330th Mi. Cor. has become obliterated.

1363.56 S., 1.48 lks. to the trial line; thence the Four Corner Monument bears S. 125,5 lks.; on this determination the true line bears N. 89 57' W.

REESTABLISHMENT

Thence from Darling's Astronomical Monument No. 10, as restored Mi. Cor. 313 + 17.08 Chs. N. 89° 57' W., on a reestablishment of the 314th mile.

Descend 71 ft. to point for the corner.

19.74 The Carpenter 17th Mi. Cor. bears North, 8.00 chs. dist.; an iron post, set under an E. and W. fence near foot of high bluff to SE.; I remove this monument.

Chains

THE DARLING LINE, 314TH MILE

68.00 Construct a concrete monument, in a form 10x24x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 313 + 68.00 Chs., 1868-1925;

from which

A standard U. S. Geological Survey tablet bears N. 51° 31' W., 4 chs. dist., tablet set in E. parapet of concrete culvert, mkd. 5118.

71.62 U. S. Highway 666, from Cortez, Colorado, to Shiprock, New Mexico, bears N. 6½° E. and S. 6½° W.

80.00 Point for the corner; unable to identify Darling's 314th Mi. Cor.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 314, 1868-1925.

No accessories available.

THE DARLING LINE, 315TH MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 315th mile.

Over gently rolling land; ascend 20 ft. to point for corner.

19.68 North, 7.61 chs. dist.; made careful search, unable to find the Carpenter 16th Mi. Cor.

30.80 Road, bears NW. and SE.

77.00 Low ridge, bears N. and S.

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 314 + 77.00 Chs., 1868-1925.

80.00 Point for the cornet; unable to identify Darling's 315th Mi. Cor.; the point falls in low ground; I did not reestablish this corner.

THE DARLING LINE, 316TH MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 316th mile.

Ascend 32 ft. over gently rolling land to point for the corner.

Chains

THE DARLING LINE, 316TH MILE

6.90 Dry wash, 20 ft. wide, course N.

19.62 The Carpenter 15th Mi. Cor. bears North, 7.22 chs. dist.; an iron post; I remove this monument.

80.00 Point for the corner; unable to identify Darling's 316th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 316, 1868-1925.
No accessories available.

THE DARLING LINE, 317TH MILE

REESTABLISHMENT

N. 89 57' W., on a reestablishment of the 317th mile.
Ascend 17 ft. over gently rolling land to the point for corner.

19.68 The Carpenter 14th Mi. Cor. bears North, 6.80 chs. dist.; an iron post; I remove this monument.

80.00 Point for the corner; unable to identify Darling's 317th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 317, 1868-1925.
No accessories available.

THE DARLING LINE, 318TH MILE

REESTABLISHMENT

N. 89 57' W., on a reestablishment of the 318th mile.
Descend 4 ft. over gently rolling land to the point for corner.

5.00 Road, bears NE. and SW.

17.40 Same road, bears NW. and SE.

19.92 The Carpenter 13th Mi. Cor. bears North, 6.37 chs. dist.; an iron post; I remove this monument.

63.50 Road, bears NW. and SE.

80.00 Point for the corner; unable to identify Darling's 318th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins.

Chains

THE DARLING LINE, 318TH MILE

in the ground, with tablet seated in the top marked Mile Corner No. 318, 1868-1925.

No accessories available.

THE DARLING LINE, 319TH MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 319th mile.

Descend 92 ft. over rolling land to the point for corner.

20.10 The Carpenter 12th Mi. Cor. bears North, 5.94 lks. dist.; an iron post; I remove this monument.

24.40 Arroyo, 10 lks. wide, 8 ft. deep, course SW.

75.70 Arroyo, 40 lks. wide, course NW.

80.00 Point for the corner; unable to identify Darling's 319th Mi. Cor.; the point falls in low ground subject to erosion; I did not reestablish this corner.

THE DARLING LINE, 320TH MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 320th mile.

Ascend 85 ft. over broken ground to point for corner.

2.00 Construct a concrete monument, in a form 8x14x36 ins., set 12 ins. in the ground on bed rock, with tablet seated in the top marked Mile Corner No. 319 + 2.00 Chs., 1868-1925; construct a concrete base for fill around the monument, and build a mound of stone around the monument.

3.30 Arroyo, 40 lks. wide, course NE.; joins other large wash about 3 chs. NE.

5.00 Road, bears NE. and SW.

20.08 The Carpenter 11th Mi. Cor. bears North, 5.51 chs. dist.; an iron post; I remove this monument.

80.00 Point for the corner; unable to identify Darling's 320th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins.

Chains THE DARLING LINE, 320TH MILE

in the ground, with tablet seated in the top marked Mile Corner No. 320, 1868-1925.

No accessories available.

THE DARLING LINE, 321ST MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 321st mile.

Ascend 8 ft. to top of ledge.

9.30 Top of shale ledge, bears NW. and SE.; descend abruptly 73 ft. into deep arroyo.

11.80 Bottom of arroyo, course N.; ascend 81 ft.

17.92 Top of ascent; descend 50 ft.

19.86 The Carpenter 10th Mi. Cor. bears North, 5.09 chs. dist.; an iron post; I remove this monument.

22.10 Deep arroyo, course N.; head approximately 4 chs. S.; ascend 70 ft.

25.53 Top of ascent; descend 33 ft.

27.40 Arroyo, course NE.; head approximately 2 chs. S.; ascend 42 ft.

42.00 Construct a concrete monument, in a form 8x11x18 ins., set 15 ins. in the ground, on a round concrete base, 18 ins. diam., 10 ins. deep, with tablet seated in the top marked Mile Corner No. 320 + 42.00 Chs., 1868-1925.

Descend 4 ft. to ledge.

50.20 Top of shale ledge, bears NW. and E.; descend abruptly 87 ft.

53.00 Arroyo, course N.; ascend 83 ft. to ledge.

59.80 Top of shale ledge, bears N. and S.; descend 69 ft. to arroyo.

61.54 Arroyo, course NW.; ascend 76 ft.

66.00 Top of ascent; descend 43 ft.

70.20 Arroyo, course N.; ascend 16 ft.

71.30 Narrow ridge, bears N. and S.; descend 100 ft.

75.50 Deep arroyo, course N.; ascend 120 ft.

82.25 Top of ascent; descend 113 ft.

Chains

THE DARLING LINE, 321ST MILE

87.87 Arroyo, course N.; ascend 90 ft. to point for corner.

88.80 Point for the corner; unable to identify Darling's 321st Mi. Cor.
The length of the 321st mile becomes 88.80 chs. in order to agree with Darling's station on top of the only ridge from which he could have read bearings to the distant objects recorded in the field notes of his 322nd mile.
The point falls on steep N. slope; I did not establish this corner.

THE DARLING LINE, 322ND MILE

REESTABLISHMENT

N. 89° 57′ W., on a reestablishment of the 322nd mile.
Ascend 55 ft. over steep N. slope.

12.00 High ridge, bears N. and S.
Checked Darling's bearings to distant objects, recorded at his mile station 321 + 12.00 Chs., and close agreement with the record was noted. The comparison has been entered at 563.54 chains. Retracement, 314th mile.
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 321 + 12.00 Chs., 1868-1925.
Descend 107 ft.

12.21 The Carpenter 9th Mi. Cor. bears North, 4.64 chs. dist.; an iron post; I remove this monument.

25.20 Dry wash, course N.; ascend 12 ft.

26.10 Narrow ridge, bears N. and S.; descend 79 ft.

65.40 Deep arroyo, 1 ch. wide, course N.; ascend 6 ft. to point for corner.

75.20 Conical mound, 40 ft. high, bears North, 2.5 chs. dist.

78.52 North, 93 lks. dist. to a wash.

78.80 North, 74 lks. dist. to a wash.

80.00 Point for the corner; unable to identify Darling's 322nd Mi. Cor.
Set an iron pipe, 3 ins. diam., 48 ins. long, with cap marked Mile Corner No. 322, 1868-1925.

C O L O R A D O

MONTEZUMA COUNTY

UTE MOUNTAIN INDIAN RESERVATION

T. 32 N., R. 19 W.

T. 32 N., R. 18 W.

22 23 24 19 20 21 22

322 N 89°57' W 80.00 321 N 89°57' W 88.80 320 N 89°57' W 80.00 319 N 89°57' W 80.00 318 N 89°57' W 80.00 317 N 89°57' W 80.0

+12.00 +12.00 +2.00

NAVAJO INDIAN RESERVATION

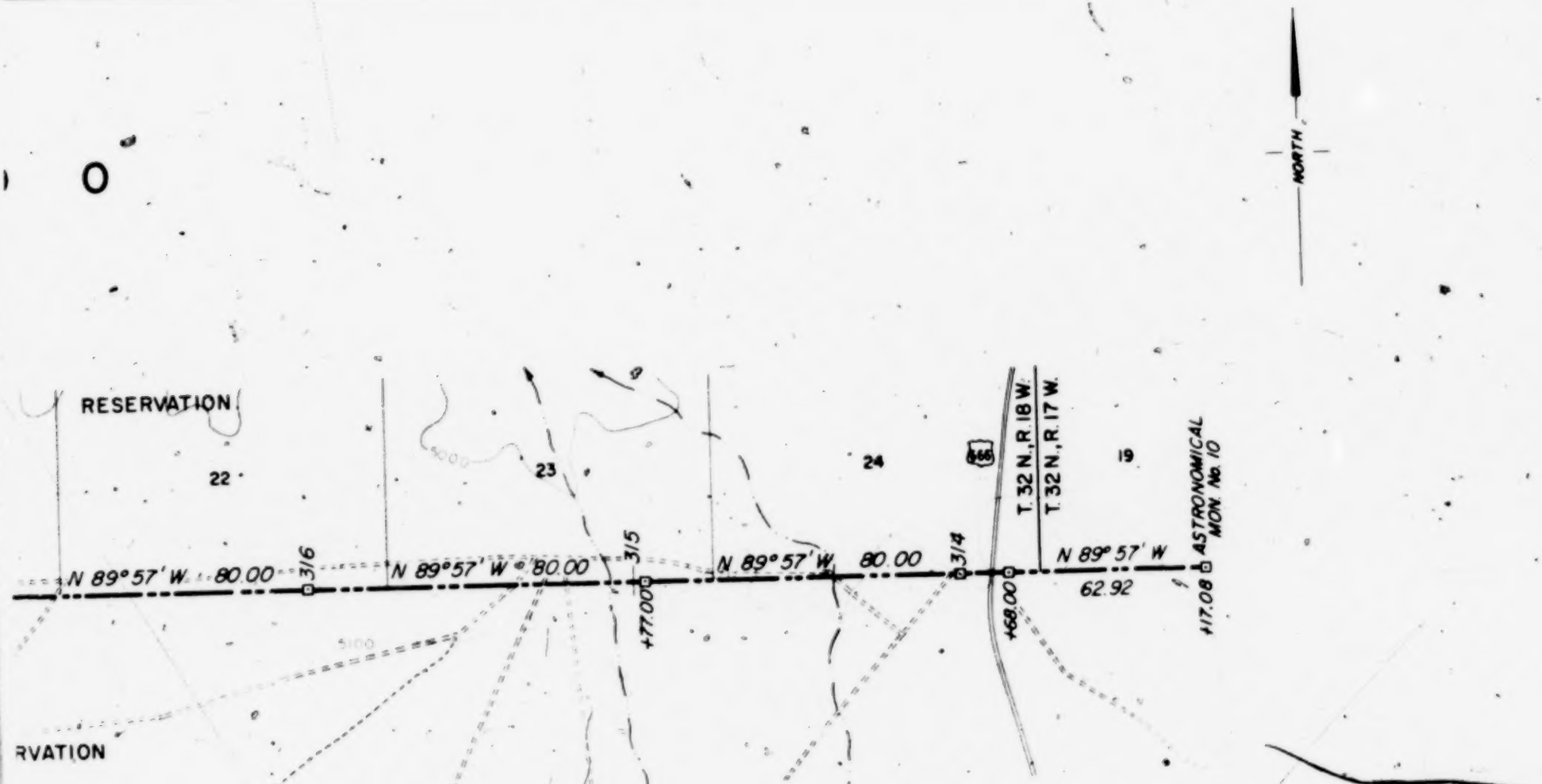
SAN JUAN COUNTY

N E W M E X I C O

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S. 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph B. Thoma
Commissioner

COLORADO AND NEW MEXICO BOUNDARY

FIELD NOTES AND MAP OF SURVEY

MILE CORNER No. 322

to

MILE CORNER No. 330 + 8.54

The Darling Line, 323rd Mile

Chains

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 323rd mile.
Ascend 120 ft. to the edge of mesa.

8.87 North, 4.16 chs. dist.: computed position for the Carpenter 8th Mi. Cor.: unable to find any trace of Carpenter's 8th Mi. Cor.

28.20 E. edge of high mesa, bears NE. and SW.

32.61 Descend 29 ft.

34.90 Wash, course NE.; ascend 29 ft.

38.80 Wash, course N.

48.60 Top of ascent; descend 27 ft.

58.90 Draw, course NW.

59.50 Draw, course N.; ascend 28 ft.

72.50 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 322 + 72.50 Chs., 1868-1925.
Descend 15 ft. to point for corner.

77.50 Head of wash, course W.; thence continue down wash.

80.00 Point for the corner; unable to identify Darling's 323rd Mi. Cor.: the true point falls in a draw draining W.; I did not reestablish this corner.

The Darling Line, 324th Mile

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 324th mile.
Descend 22 ft.

4.80 Wash, 10 lks. wide, 5 ft. deep, course NW.

6.48 Ascend 24 ft.

11.84 The Carpenter 7th Mi. Cor. bears North, 3.68 chs. dist.; an iron post, no cap on post; I remove this monument.

16.07 Top of ascent; thence over nearly level land.

21.07 Descend 98 ft. on broken slope.

Chains

THE DARLING LINE, 324TH MILE

29.10 Draw, course N.

45.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 323 + 45.00 Chs., 1868-1925.
Ascend 72 ft. to spur.

45.60 Wagon trail, bears N. and S.

45.80 Wash, 20 lks. wide, course N.

53.20 Ravine, course N.

58.40 Spur, bears N.: descend 61 ft.

63.40 Ravine, course N.: ascend 36 ft.

65.00 Top of ascent: descend 46 ft.

68.00 Ravine, course NW.: ascend 30 ft. to point for corner.

74.90 Wash, course N.

80.00 Point for the corner: unable to identify Darling's 324th Mi. Cor.: point falls on unstable ground. I did not establish this corner.

THE DARLING LINE, 325TH MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 325th mile.
Ascend 4 ft. to top of spur.

1.35 Narrow gravel spur, slopes N. 70° W.
Set a Carpenter iron post, 3 ins. diam., 36 ins. long, 24 ins. in the ground. Obliterate the Carpenter marks from the cap, leaving COLO on N., NM on S., in raised letters, and remark the cap D A R below COLO on N., 324 M + 1.35 Chs. in center, 1868 on W., and 1925 on E.
Descend 67 ft. into valley.

6.80 Leave bad lands; enter Mancos Valley, bearing NE. and SW.

12.00 North, 3.16 chs. dist.: made careful search, unable to find the Carpenter 6th Mi. Cor.

21.81 Bottom of descent: thence over nearly level valley land

Chains

THE DARLING LINE, 325TH MILE

49.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 324 + 49.00 Chs., 1868-1925.

51.00 Top of bluff on E. side of Mancos River, 40 ft. high, bears N. and S.

55.80 E. bank of Mancos River, 1 ch. wide, course S.

59.10 S., 2.60 chs. dist.; ruins of an old stone house on W. bluff of Mancos River.

60.06 Road, bears N. and S.

70.50 Draw, course SE.; ascend 42 ft. to point for corner.

80.00 Point for the corner; unable to identify Darling's 325th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 325, 1868-1925.

THE DARLING LINE, 326TH MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 326th mile. Descend 8 ft. over broken land.

10.32 The Carpenter 5th Mi. Cor. bears North, 2.64 chs. dist.; an iron post; I remove this monument.

27.50 Wash, course SE.

30.20 Ascend 84 ft. to point for corner.

80.00 Point for the corner; unable to identify Darling's 326th Mi. Cor. Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 326, 1868-1925.

THE DARLING LINE, 327TH MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 327th mile. Ascend 19 ft.

10.50 North, 2.08 chs. dist.; made careful search, unable to find the Carpenter 4th Mi. Cor.

Chains

THE DARLING LINE, 327TH MILE

15.50 Top of ascent; descend 84 ft. to ledge.

35.50 Top of ledge, E. rim of canon, bears S. 60 W. and N. 60 E.; descend abruptly.

40.75 Top of ledge, on W. rim of NE. branch of canon, 90 ft. deep, bears S. 60 W.

43.92 Ascend 84 ft. to top of rim rock, E. side of NW. branch of canon.

45.30 Deep canon, bears S.; confluence approximately 2.5 chs. S.

49.60 W. rim of canon, bears NW. and SE.

69.12 Set a tablet in outcrop of sandstone ledge, marked Mile Corner No. 326 + 69.12 Chs., 1868-1925.
Raise a mound of stone E. of the tablet.

70.00 Top of sandstone rim rock, bears N. and S.; conforming with the Darling field note record; descend 134 ft. abruptly into canon, course W.

80.00 Point for the corner; the 327th Mi. Cor was not established by Darling; point falls on steep S. slope; I did not establish this corner.

THE DARLING LINE, 328TH MILE

REESTABLISHMENT

N. 89° 57' W., on a reestablishment of the 328th mile.
Descend 57 ft. along steep wall of canon.

9.30 Leave canon; bottom of arroyo, course S. 60° W.; thence over nearly level valley land.

10.94 The Carpenter 3rd Mi. Cor. bears North, 1.52 chs. dist.; an iron post, 3 ins. diam.; I remove this monument.

17.40 Foot of mesa, bears NW. and SE.; ascend 35 ft.

18.30 Arroyo, 20 lks. wide, 10 lks. deep, course SE.

22.40 Thence over nearly level land.

32.40 Begin gradual descent of 16 ft. to edge of San Juan River.

41.70 Dry wash, 10 lks. wide, course SW.

North, approximately 3 chs. dist., to an Indian hogan; another hogan bears SW., approximately 1.5 chs. dist.

Chains

THE DARLING LINE, 328TH MILE

67.40 E. bank of San Juan River.

80.00 Point for the corner; unable to identify Darling's 328th Mi. Cor.; point falls in the San Juan River.

THE DARLING LINE, 329TH MILE

REESTABLISHMENT

N. 89 57' W., on a reestablishment of the 329th mile.

9.00 On level ground, S. side of river, S. and above left bank.
Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 328 + 9.00 Chs., 1868-1925.

10.79 The Carpenter 2nd Mi. Cor. bears North, 1.08 chs. dist.; a mound of stone; iron post has become obliterated; I scatter the mound of stone.

Thence over nearly level ground on S. side of river.

55.10 Top of river bluff, 40 ft. high, bears NE. and SW.
Descend 22 ft. to river flood area.

65.00 Ascend 17 ft. gradually to point for corner.

80.00 Point for the corner; unable to identify Darling's 329th Mi. Cor.; point falls in the flood area of the San Juan River; I did not establish this corner.

THE DARLING LINE, 330TH MILE

REESTABLISHMENT

N. 89 57' W., on a reestablishment of the 330th mile.
Over nearly level, barren ground.

11.14 The point for the Carpenter 1st Mi. Cor.; Carpenter did not establish this corner.

16.50 Top of river bluff, 30 ft. high, bears NW. and SE.; ascend 44 ft.

17.14 The point for the Carpenter 0.925 Mi. Cor.; the iron post has been removed.

Chains

THE DARLING LINE, 330TH MILE

20.00 Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 329 + 20.00 Chs., 1868-1925.

33.80 Top of ascent; thence over nearly level ground.

43.50 Telephone line, bears N. and S.

47.30 Dry wash, course N.; begin steep ascent of 276 ft.

50.80 Ledge rock outcrop, bears N. and S.; continue steep ascent.

69.10 Top of sharp lava rock ridge, bears N. and S.; descend 57 ft.

77.24 Dry wash, course N.; ascend 18 ft. to point for corner.

82.60 Point for the corner, unable to identify Darling's 330th Mi. Cor. The length of the 330th mile becomes 82.60 chs. in order to conform with the record distance (8.54 chs.) by Chandler Robbins, 1875, East from his established position for the 4 corners monument.

At point for corner

Construct a concrete monument, in a form 8x14x36 ins., set 24 ins. in the ground, with tablet seated in the top marked Mile Corner No. 330, 1868-1925.

THE DARLING LINE, 331ST MILE

REESTABLISHMENT

N. 89° 57′ W., on a reestablishment of the 331st mile.

Ascend 14 ft. over nearly level ground to corner.

8.54 The monument at the Corner of the Four States, Colorado, New Mexico, Arizona, and Utah.

A concrete monument, 14 ins. sq. at the top, 19 ins. sq. at the ground surface, standing 20 ins. above ground, firm foundation. Seated in the top, a standard General Land Office bronze tablet, 3½ ins. diam., now badly mutilated. The field note record calls for the following marks:

FOUR CORNERS

UTAH	COLO.
ARIZ.	N. MEX.
1931	1934

Chains

THE DARLING LINE, 331ST MILE

From the center of the monument

A reference monument bears West, 1.14 chs. dist.; a standard General Land Office bronze tablet, 3½ ins. diam., seated in a concrete base, top flush with the ground, top 12 ins. sq.; tablet mkd. REFERENCE No. 2, 1931-1934; an arrow pointing to the corner.

A similar reference monument bears East, 1.14 chs. dist.; tablet mkd. REFERENCE No. 1, 1931-1934; an arrow pointing to the corner.

HISTORICAL SKETCH FOUR CORNER

1868—Darling's terminal monument, his Astronomical Monument No. 11, for the intersection of the 109th Meridian West from Greenwich was placed at his station 331st Mi. Cor. plus 60.00 chs.

1875—Chandler Robbins, U. S. Surveyor and Astronomer, having derived a new longitude determination measured West from Wilson Peak (Shiprock) in northwesterly New Mexico, placed the intersection with the boundary at Darling Mi. Cor. 330 plus 8.54 chs.; Robbins erected a substantial stone monument appropriately marked to identify the Corner of the Four States. This became his initial point for the survey of the meridian running South on the establishment of the boundary between New Mexico and Arizona.

1878—Rollin J. Reeves, U. S. Surveyor, duly identified the Robbins monument, and beginning at this point surveyed the meridian running North, establishing and marking the boundary between Colorado and Utah.

1885—Allen D. Wilson, U. S. Surveyor, again identified the Robbins monument, and retraced the line running North, along the boundary between Colorado and Utah.

1899—Hubert D. Page and James M. Lentz, U. S. Surveyors, engaged in subdividing a portion of T. 43 S., R. 26 E., Salt Lake Meridian, the southeasterly township in Utah, and closing their fractional sections on the Colorado and Utah boundary, as previously established, recovered the position of the Robbins monument at the Corner of the Four States, though finding that the stone had been disturbed and broken.

Page and Lentz marked and set a new stone at the original Robbins location.

1901—Howard B. Carpenter, U. S. Surveyor and Astronomer, surveyed and established the Utah and Arizona boundary, running from West to East along the 37th Parallel. At the Carpenter station 277th Mi. Cor. plus 5.18 chs., on true line S. 89° 42′ E., by random and true line beginning at his 272nd Mi. Cor., intersected and closed the survey at the monument marking the Corner of the Four States established by Page and Lentz, finding the stone well marked and in good condition.

1902—This was the initial point of the Carpenter survey along the redetermination of the 37th Parallel, running eastward.

1915—Clayton R. Burt, U. S. Surveyor, running and marking the outboundary lines of the lands of the Southern Ute Indians in Colorado, including also an area in New Mexico farther to the East, retraced the Colorado and Utah boundary as previously established. Burt identified the Page monument at the Corner of the Four States.

1931—Everett H. Kimmell, U. S. Surveyor, General Land Office, Department of the Interior, on field work in cooperation with a party of the U. S. Coast and Geodetic Survey, Department of Commerce, identified the Page and Lentz stone, and a marked stone deposit, finding the larger stone again broken. Kimmell constructed the concrete monument now marking the Corner of the Four States.

1934—Geographic position at the Corner of the Four States, U. S. Coast and Geodetic Survey, North American datum:

Latitude	36° 59′ 56.3″ N.
Longitude	109° 02′ 40.24″ W.

C O L O R A D O

MONTEZUMA COUNTY

UTAH

ARIZONA

UTE MOUNTAIN INDIAN RESERVATION

NAVAJO INDIAN RESERVATION

SAN JUAN COUNTY

N E W M E X I C O

20 21 22 23 24 19

T. 32 N., R. 21 W.

T. 32 N., R. 20 W.

T. 32 N., R. 20 W.

T. 32 N., R. 19 W.

330 327 326 325

+8.54 +20.00 +9.00 +69.12 +49.00

N 89° 57' W 82.60 80.00 80.00 80.00 80.00 80.00 80.0

4800 4700

San Juan River

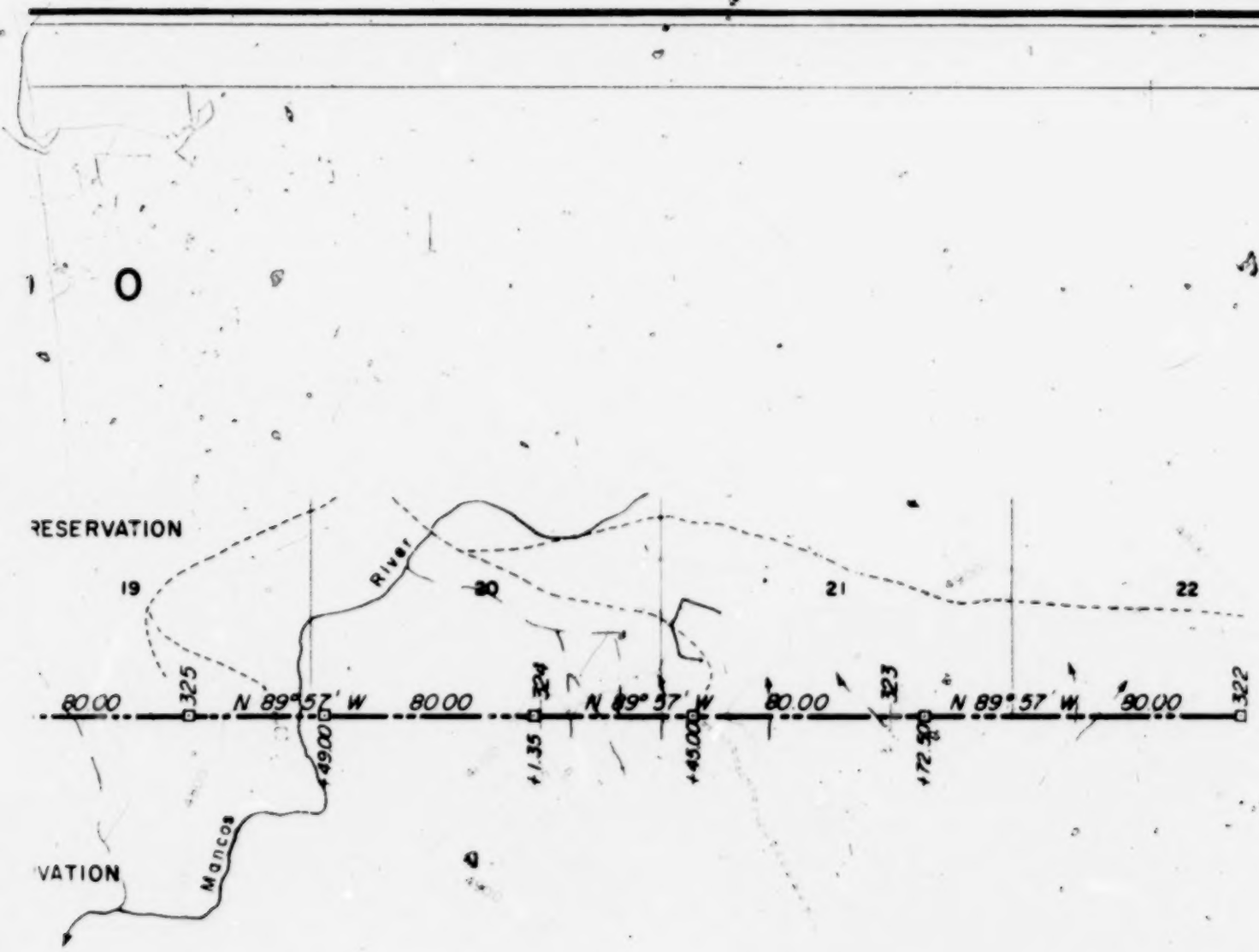
Tohache Wash

Mancos River

SCALE

0 10 20 30 40 80

40 Chains to the inch



COLORADO AND NEW MEXICO BOUNDARY

This plat depicts the boundary line between the States of Colorado and New Mexico as reestablished by the late Arthur D Kidder, Boundary Commissioner, under the Decree (268 U.S 108) of the Supreme Court of the United States, dated April 13, 1925

Joseph E. Thoma

Commissioner

CLERK'S COPY.

Vol. I

TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1919.

No. 12, Original

THE STATE OF NEW MEXICO, COMPLAINANT,

vs.

THE STATE OF COLORADO

IN EQUITY

FILED OCTOBER 29, 1919

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1924

No. 12, Original

THE STATE OF NEW MEXICO, COMPLAINANT,

vs.

THE STATE OF COLORADO

IN EQUITY

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[fol. 1] IN THE

SUPREME COURT OF THE UNITED STATES

THE STATE OF NEW MEXICO

vs.

THE STATE OF COLORADO

MOTION FOR LEAVE TO FILE BILL OF COMPLAINT—Filed Oct. 29, 1919

Now comes the said State of New Mexico by its special counsel employed for the purpose, and moves the court for leave to file its bill of complaint against the State of Colorado, which it submits herewith for the consideration of the court in passing upon this motion.

Octaviano A. Larrazolo, Frank W. Clancy, Special Counsel for the State of New Mexico.

[fol. 2] [File endorsement omitted.]

[fol. 3] SUPREME COURT OF THE UNITED STATES

THE STATE OF NEW MEXICO, Complainant,

vs.

THE STATE OF COLORADO

ORDER GRANTING LEAVE TO FILE BILL OF COMPLAINT—Filed October 13, 1919

On consideration of the motion for leave to file a bill of complaint herein,

It is now here ordered by the court that the said motion be, and the same is hereby, granted, and process is ordered to issue returnable on Monday, March 1st next.

Per Mr. Chief Justice White.

[fol. 4] [File endorsement omitted.]

[fol. 5] SUPREME COURT OF THE UNITED STATES

[Title omitted]

ORDER FOR APPEARANCE—Filed October 29, 1919

The Clerk of the court is authorized and directed to enter our appearance as Counsel for the complainant in the above entitled cause.

Octaviano A. Larrazolo, Frank W. Clancy.

[fols. 6 & 7] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

BILL OF COMPLAINT—Filed Oct. 29, 1919

To the Honorables the Chief Justice and Associate Justices of the Supreme Court of the United States:

The State of New Xexico, by Octavjano A. Larrazolo and Frank W. Clancy, Special Counsel, employed to represent the said State in the prosecution of this suit, presents this, its bill of complaint, against the State of Colorado and respectfully complaining [illegible] into this honorable court, that the ground upon which the [illegible]isdiction of the matters hereinafter set forth, depends, is that this bill of complaint sets out a controversy between the said two States of which this court has original jurisdiction.

Your orator further shows that by the legislation of Congress under which the State of Colorado was admitted into the Union of States, and by the constitution of the State of New Mexico under which the said State of New Mexico was admitted into the Union of States, the southern boundry line of the said State of Colorado and the northern boundry line of the State of New Mexico extends along the 37th parallel of north latitude from the intersection of said parallel with the 32nd meridian of longitude west from Washington in an easterly direction to the point where said parallel of latitude intersects the 103rd meridian of longitude west from Greenwich.

Your orator further shows that on the 8th day of July, 1902, Howard B. Carpenter, a United States surveyor, entered into a contract with the United States to well truly and faithfully re-survey, re-establish and re-mark the boundry line between Colorado and the [fol. 8] territories of New Mexico and Oklahoma, the same being that portion of the parallel of thirty-seven degrees of north latitude lying between the 25th and 32nd degrees of longitude west from Washington, and in pursuance of said contract and the instructions given to him by the acting Commissioner of the General Land Office, the said Carpenter did thereafter proceed to re-survey, re-establish and re-mark the said boundry line as will appear by the record and

field notes of his work, a copy of which together with a copy of said instructions from the acting commissioner of the General Land Office, so far as that record and field notes cover that portion of the 37th parallel of north latitude which constitutes the boundry between the States of Colorado and New Mexico, is hereto attached and made a part hereof, which field notes, having been examined and found correct, were approved by the commissioner of the General Land Office, as appears by his certificate to that effect attached to the said field notes hereinbefore referred to.

Your orator further shows that the line surveyed and established by the said Carpenter as shown by his field notes is the true and correct boundary line between the said two states, but that the defendant State of Colorado in disregard of that boundary line and not respecting the rights of your orator has usurped jurisdiction over a considerable amount of territory south of said line and has unlawfully levied and collected taxes upon property south of said line and through its courts has attempted to exercise both civil and criminal jurisdiction over persons and property lying south of said line; but your orator further shows that it is unable to state how far to the south of the said boundary line the State of Colorado claims jurisdiction, which acts, doings, pretenses and claims of the State of Colorado are contrary to equity and good conscience and tend to the manifest wrong, injury and oppression of your orator and of its citizens and owners of property within its boundaries.

Wherefore, being without remedy except by an original proceeding in this honorable court, where matters of this nature are, under the constitution of the United States, properly cognizable and relievable, and to the end that the State of Colorado full, true and perfect answer may make to all and signular the matters aforesaid, (but not under oath, answer under oath being hereby expressly waived), as fully and particularly as if the same were here repeated and the defendant [fol. 9] distinctly interrogated thereto, and that the said boundary line surveyed, established and marked by the said Howard B. Carpenter as set out and shown in the field notes of his survey, a copy of which is attached hereto as hereinbefore stated, be by this honorable court decreed to be the true boundary line between the States of New Mexico and the State of Colorado along the parallel of 37 degrees of north latitude, and that your orator may have such further or other relief as the nature of the case may require and to the court shall seem meet,

May it please the court to grant unto your orator such process issuing out of and under the seal of this honorable court as may be appropriate to require the said defendant, the State of Colorado to be and appear before this court, then and there to answer the said premises and to abide by and perform such order and decree as to the court shall seem meet and proper.

State of New Mexico, by Octaviano A. Larrazolo and Frank W. Clancy, Its Special Counsel.

EXHIBIT TO BILL OF COMPLAINT

Department of the Interior

General Land Office

Special Instructions for Resurvey of South Boundary of Colorado

Washington, D. C., July 7th, 1902.

Mr. Howard B. Carpenter, U. S. Surveyor, Kenwood, California.

SIR: Having entered into a contract on the 7th day of July, 1902, with the United States, to "well, truly and faithfully re-survey, re-establish and re-mark the boundary line between Colorado and the Territories of New Mexico and Oklahoma, the same being that portion of the parallel of thirty-seven degrees of North latitude lying be-
[fol. 10] tween the 25th and 32nd degrees of West longitude, for Washington, "you will be governed in the execution *in the execution* of said resurvey by the terms of your contract and the manual of instructions of 1902, wherever applicable and these special instructions.

You will begin your re-survey by proceeding to a point not less than 20 miles east of the corner established and recognized as the S. W. corner of Colorado near which point you will select a convenient and suitable site for an astronomical station and take careful observations for latitude. When full and accurate determinations are accomplished you will measure to the parallel erect an astronomical monument of the size and material prescribed in your contract. From this monument you will run a random line due west and note the falling upon the said S. W. corner, after which you will correct your line back as a true line setting mile corners as prescribed in the contract.

Thence you will proceed east along the said parallel, running your line by the usual method of setting off tangents to the parallel based upon careful meridional observations. You will verify the establishment of the parallel by observations for latitude taken upon stars north and south of the zenith. The observations for this purpose will be taken from at least eight astronomical stations along the line, the 1st at the 20-mile point as above instructed, the remainder at intervals of about 50 miles, and an equal number of astronomical monuments erected. These monuments will consist of a shaft of stone at least 6 feet in length and 12 inches in thickness, dressed on each face 6 inches to receive the inscriptions which will be as follows:

On the E. face 37 N. L. and the year.
On the N. face Colo.
On the S. face N. Mex. or Okla.
On the W. face the dist. from the Western extremity to the monument.

These astronomical monuments may stand in place of the eight-mile corners if practicable to place them.

When observations for latitude are taken at astronomical stations, and the results shows that the position of your line is in error in excess of three seconds of arc, the line should be corrected back so as to bring it within this limit.

In the event of the above number of astronomical monuments be-[fol. 11]-ing established along the line, the eighth monument will be set at a theoretical distance of 17 miles west of the eastern extremity of the line on the S. E. corner of Colorado. From this monument you will run a random line to the recognized corner to Colorado and Kansas, and if falling be less than 3 chains you will correct the line back connecting the said monument with the said corner by a straight line.

Should the closing be in excess of 3 chains, you will set a closing corner on the west boundary line of Kansas, or on the prolongation thereof, marking the same C. C. with appropriate letters, for this closing corner which will stand for the S. E. corner of Colorado, a dressed stone should be provided. It should be 5 ft. in length, 10 inches square and be inscribed, if set to the north of the original corner,

On the N. W. face Col.
On the S. W. face Okla.
On the S. E. face C. C.
On the N. E. face Kan.,

and if set to the south of the original corner, the same markings except that the letters KAN. will be omitted.

You are required to exercise the utmost care in the determination of meridians by repeated observations, and the projection therefrom of tangents to the parallel, the mean of not less than three careful and complete observations must be taken in determining such alignments. Due care must be taken in the extension of tangents, by reversion of instruments and other means in ordinary use for counteracting the growth of accumulative errors, and lines must be clear of ordinary obstruction to correct observations.

Each corner will consist of a wrought iron pipe three inches in diameter, 4 ft. long, made of ⅛ inch iron, having two flanges opposite each other at the bottom, each projecting 3 inches, the pipe to be surmounted by a cap or head of brass 3½ inches in diameter having a sleeve of about an inch in length which will admit of the insertion of the pipe, the head to be secured to the pipe by a bolt ¼ inch in diameter passing through openings in the pipe and sleeve and held in place by a nut 3/16 inches in thickness, the head of the bolt to be hammered after the nut is in place in order to prevent its slipping off, or its forcible removal. The brass cap will have letters Colo. and N. M. (or Okla. when Oklahoma is reached), cast upon its [fol. 12] surface, and between these two word the number of the mile corner is stamped. The pipe will be planted 2 feet in the ground and have the earth firmly tamped around it, so as to secure its rigidity and prevent withdrawal. A mound of earth or stone or both earth and stone will be built around the pipe 1½ feet high, and 3 ft. diameter, and pits will be dug 6 ft. distant, N. S. E. and W. 36

inches square, 18 inches deep; corners are to be further witnessed by trees when trees over 6 inches in diameter are found within 2 chains of the corner, four trees to each corner will be taken where this number can be found within limits. They will be marked with the letters Colo. when north of line, and N. M. or Okl. when south of the line, together with the number of mile corner which they witness, and the letters B. T.

Bearing objects when available within 5 chains—such as a cliff or wall—will be taken, the course and distance ascertained, and they will be marked with a cross, together with the letters Colo. N. M. as the case may be, the number of the mile and the letters B. O. In case of witness corners the same methods will be followed and the marking will have in addition the letters W. C.

In triangulation work if done by the ordinary engineer's transit repetitions of angles should be made in opposite directions in order to eliminate as far as possible, errors from clamp and axis movements. The telescope should be inverted for half the repetitions to avoid errors arising from the line of sight not being perpendicular to the horizontal axis, and from the horizontal axis not being perpendicular to the vertical axis.

Measurements will me made by either chaining or by stadia-rod when by the former, two sets of chainmen operating independently of each other will be employed.

This method will be used on level ground where long sights are obtained. Stadia measurements may be taken when mountainous and rugged ground is encountered.

Gunter's steel chain with brazen links, or a steel tape may be used in chaining. A standard chain or tape should be carried and used only for comparison with the field chains which should be tested daily.

In measuring distances by stadia the errors made in reading the rod, if it be properly graduated, will be from reading the position of the wires, and accuracy is further affected by the condition of the atmosphere.

[fol. 13] On inclined sights the distance read on the rod will be reduced to the horizontal by proper tables or diagrams, and when the atmosphere is hazy or unsteady from the effects of heat, care should be taken to shorten up the sights. The error of closure should not be greater than one in 500.

Offset angles to the parallel must be made with accuracy, and where the offset distances exceed one chain, they shall be twice measured as in the case of the tangents.

Where by reason of some peculiarity or irregularity of the surface, a mile corner or monument cannot be established in proper position, it will be erected at some suitable advanced point on the line, its inscribed distance from the true point made to correspond and in so placing it preference should be given a safe as well as conspicuous point near a pass, road, or river crossing.

Offsets and bases for triangulations will be measured with great care and the requirements of the manual.

You are required to provide yourself with suitable equipment

and means of obtaining supplies adequate to a continuous prosecution of the work, and the ordinary wants of your employes. You will associate with yourself an astronomer who has had field experience in the establishment of similar boundary lines, and who can be relied upon to furnish to you reliable and accurate data, for the proper location of points on the 37th parallel.

You will provide yourself with such astronomical and field instruments of approved construction and accuracy of adjustment as may be necessary in accurately determining meridians, parallels of latitude, tangential extensions and triangulations. This office will provide a zenith telescope for your use on this survey, which instrument will be returned to this office in good order at the determination of the field-work. In the transportation of said instruments and their various removals on the line, no pains must be spared tending to their preservation in the best possible adjustment and working order.

Examinations for adjustment of the instruments in use must be made at the commencement of each day's work, weather permitting, necessary corrections made and a record of such examinations entered in the field notes under proper dates.

Notes of position and sketches of all important topographical [fol. 14] features on and in the vicinity of the boundary, must be be taken as the survey progresses, and such conspicuous distant [illegible] on the boundary.

Where lines of public surveys have been closed upon the Darling line, you will not attempt to eradicate the closing corners, but will endeavor to find and obliterate all evidences of the mile corners re-established by subdividing and other deputy surveyors in restoring the position of the Darling line.

You will, however, leave standing the monuments now standing on the line between Colorado and Oklahoma, except those set by Darling. All evidences of corners or monuments set by Darling on south boundary of Colorado will be carefully obliterated.

Upon completion of the survey in the field, you will prepare triplicate copies of the field and astronomical notes thereof, properly indexed, headed, typewritten and securely bound, with the preliminary and final oaths.

You will also prepare in triplicate upon mounted paper, upon a scale of two miles to an inch, a neatly and clearly executed diagram or map of the survey, showing the boundary line and the topography thereon. The duplicate and triplicate may be photographs of the original, laid on the same scale and be mounted.

Very respectfully, (Signed) W. A. Richards, Acting Commissioner.

Department of the Interior

C. L. D. B.

General Land Office

Washington

Washington, D. C., Sept. 9, 1903.

Mr. H. B. Carpenter, U. S. Surveyor, Cheyenne, Wyoming.

DEAR SIR: The report of F. M. Johnson, Examiner of Surveys, of his examination of your re-survey of the south boundary of [fol. 15] Colorado under your contract, dated July 7th, 1902, has been received. This report shows that you have made a good survey of this line, that the mile corners are of the character required by the contract and properly set and witnessed.

Between the 5th and 6th astronomical stations there seems to be such a deflection from a true east line as would indicate that one of these monuments was not upon the 37th parallel of latitude.

In order to test this location, Mr. Arthur D. Kidder, an Examiner of Surveys of this office, was instructed to go to your astronomical station No. 6, and by astronomical observations determine its location as to latitude. This he has done, with the result that the monument at this station was found to be 3″ of arc north of the 37th parallel. As this is exactly the closing limit allowed upon this survey, it is surmised that you placed this monument where it is through a misunderstanding of your instructions.

It was the intention of this office that the monuments erected at astronomical stations should be placed on the 37th parallel, as determined by the observations, and that the line should close upon them with 3″ of arc.

If it is true that you placed the monument where your line fell, although that may have been within the closing limit, but not upon the parallel, it will be necessary for you to return to the field and place any such monuments so located upon the parallel. While this will leave your line within the closing limits, it is suggested that at least four mile corners, both east and west of monument No. 6, should be corrected in order to avoid the angle that would otherwise exist at this point.

If it is necessary to change the location of other monuments, please correct the line on either side of them in the same manner, the number of mile corners moved being in proportion to the distance which the monument is moved compared with monument No. 6.

Mr. Kidder will test the latitude of the monument at station No. 5, and endeavor to determine the cause of the deflection of the line between that monument and No. 6.

Mr. Johnson's report shows that the eastern terminus of your line is at a point 40.34 chs., north of the southwestern corner of Kansas as now established.

As these points should be coincident, it is important that the termi-
[fol. 16] nus of your line should be upon the 37th parallel as near as it is possible to fix it. That this may be done, Mr. Kidder has been instructed to proceed to that point and determine its latitude. If it should appear as a result of his observations that your terminal monument is not upon the 37th parallel, I have to request that you place it there and make such corrections of the line east of that point, as may be necessary. Mr. Kidder is now in the field and when this reaches you, should be at the 5th monument observing for latitude. His temporary address while there will be Trinidad. I suggest that you join him as soon as convenient. Any further instructions that may be necessary as the result of his examination will be furnished by telegraph.

I regret the necessity for your returning to the field and feel that you are being called upon to do more than your contract requires, but your work has heretofore been of such a high character and this is so good that I feel that you would rather be imposed upon to this extent than have this survey marred by these slight defects.

Very truly yours, (Signed) W. A. Richards, Commissioner.

Names and Duties of Assistants

1902

Augustus MacConnell	Assistant Astronomer.
L. B. Neighbor	Transitman.
E. Potter Lockwood	Chainman.
Walter Stone	Chainman.
Ernest G. Spinney	Chainman.
Linus Olson	Chainman.
C. D. Carpenter	Moundman.
J. W. Miller	Moundman.
Charles Windquist	Moundman.
Grover C. Bowman	Axman.
O. J. Bowman	Axman.
Wm. D. Skinner	Rodman.
J. L. Wentz	Flagman.
J. G. Myers	Flagman.
Oscar McClellan	Master of Transportation.
C. W. Hooper	Photographer.

[fol. 17]

Arthur L. Broadhead	Teamster.
Chas. H. Spencer	Chief Packer.
R. B. Maupin	Packer.
Sam Kinsey	Packer.
C. M. Holiday	Cook.
W. D. Saylor	Cook.

Names and Duties of Assistants

1903

Oscar McClellan	Transitman.
Walter Stone	Chainman.
William L. Horton	Chainman.
Clarence Holliday	Chainman.
Potter Lockwood	Chainman.
C. D. Carpenter	Moundman.
Charles Windquist	Moundman.
Linus Olson	Moundman.
Harry Weiner	Axman.
Silas S. Weiner	Axman.
E. P. Blanchard	Rodman.
Fred E. Lockwood	Flagman.
William A. Pinckard	Flagman.
Charles H. Spencer	Master of Transportation.
Arthur Spencer	Packer.
Clarence Broadhead	Cook.
E. P. Blanchard	Chainman, October, 1903.
F. E. Wright	Chainman.
Andrew Ferrara	Moundman.

Preliminary Oaths of Assistants

1902

I, Augustus MacConnell, do solemnly swear that I will well and faithfully perform the duties of Assistant Astronomer in the establishment of Latitude 37 degrees North on the Re-survey of the South Boundary of the State of Colorado.

(Signed) Augustus MacConnell, Assistant Astronomer. (Seal.)

[fol. 18] Subscribed and sworn to before me this 17th day of September, 1902. (Signed) Henry Bauer, Notary Public.

I, Lambert B. Neighbor, do solemnly swear that I will well and faithfully perform the duties of Transitman according to the instructions given me and to the best of my skill and ability in the Resurvey of the South Boundary of the State of Colorado.

(Signed) Lambert B. Neighbor, Transitman. (Seal.)

Subscribed and sworn to before me this 2nd day of October, 1902. (Signed) Henry Bauer, Notary Public.

We, Potter Lockwood, Ernest G. Spinney, Walter Stone and Linus Olson, do solemnly swear that we will well and faithfully execute the duties of chainman; that we will level the chain on even and uneven ground, and plumb the tally pins either by sticking or dropping same; that we will report the true distances to all notable objects and

the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with the instructions given us, in the re-survey of the South Boundary of the State of Colorado.

(Signed) Potter Lockwood, Chainman. Ernest G. Spinney, Chainman. Walter Stone, Chainman. Linus Olson, Chainman.

Subscribed and sworn to before me this 2nd day of October, 1902. (Signed) Henry Bauer, Notary Public. (Seal.)

We, Charles D. Carpenter, J. W. Miller and Charles Windquist do solemnly swear that we will well and truly perform the duties of moundmen in the establishment of corners, according to the instruc- [fol. 19] tions given us, to the best of our ability and skill, in the re-survey of the South Boundary of the State of Colorado.

(Signed) Charles D. Carpenter, Moundman. J. W. Miller, Moundman. Charles (his X mark) Windquist, Moundman.

Subscribed and sworn to before me this 2nd day of October, 1902. (Signed) Henry Bauer, Notary Public. (Seal.)

We, O. J. Bowman and Grover C. Bowman, do solemnly swear that we will well and truly perform the duties of axman, in the establishment of corners and other duties, according to the instructions given us, and to the best of our skill and ability, in the re-survey of the South Boundary of the State of Colorado.

(Signed) O. J. Bowman, Axman. G. C. Bowman, Axman.

Subscribed and sworn to before me this 2nd day of October, 1902. (Signed) Henry Bauer, Notary Public. (Seal.)

I, Wm. D. Skinner, do solemnly swear that I will faithfully perform the duties of Rodman according to the instructions given me, and to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Wm. D. Skinner, Rodman.

Subscribed and sworn to before me this 2nd day of October, 1902. (Signed) Henry Bauer, Notary Public. (Seal.)

We, J. G. Myers and J. L. Wentz, do solemnly swear that we will well and truly perform the duties of Flagman according to instructions given us, and to the best of our skill and ability, in the Resurvey of the South Boundary of the State of Colorado.

(Signed) J. G. Myers, Flagman. J. L. Wentz, Flagman. (Seal.)

[fol. 26] Subscribed and sworn to before me this 2nd day of October, 1902. (Signed) Henry Bauer, Notary Public.

Preliminary Oaths of Assistants

1903

I, Oscar McClellan, do solemnly swear that I will well and faithfully perform the duties of Transitman, according to the instructions given me and to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Oscar McClellan, Transitman.

Subscribed and sworn to before me this 20th day of April, 1903. (Signed) J. D. Frazey, Notary Public. (Seal.)

We, Clarence Holliday, Potter Lockwood, W. L. Horton and Walter Stone, do solemnly swear that we will well and faithfully execute the duties of chainman; that we will level the chain on even and uneven ground and plumb the talley pins either by sticking or dropping the same; that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with instructions given us, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) C. E. Holliday, Chainman. Potter Lockwood, Chainman. W. L. Horton, Chainman. Walter Stone, Chainman.

Subscribed and sworn to before me this 20th day of April, 1903. (Signed) J. D. Frazey, Notary Public. (Seal.)

We, C. D. Carpenter, Charles Windquist and Linus Olson, solemnly swear that we will well and truly perform the duties of Moundmen, [fol. 21] in the establishment of corners, according to the instructions given us to the best of our skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) C. D. Carpenter, Moundman. Charles (his X mark) Windquist, Moundman. Linus Olson, Moundman.

Subscribed and sworn to before me this 20th day of April, 1903. (Signed) J. D. Frazey, Notary Public. (Seal.)

We, Silas S. Weimer and Harry Weimer, do solemnly swear that we will well and truly perform the duties of axman, in the establishment of corners, and other duties, according to the instructions given us, and to the best of our skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Silas S. Weimer, Axman. Harry Weimer, Axman.

Subscribed and sworn to before me this 20th day of April, 1903. (Signed) J. D. Frazey, Notary Public. (Seal.)

I, Ed. P. Blanchard, do solemnly swear that I will faithfully perform the duties of Rodman, according to the instructions given me, and to the best of my skill and ability in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Ed. P. Blanchard, Rodman.

Subscribed and sworn to before me this 20th day of April, 1903. (Signed) J. D. Frazey, Notary Public. (Seal.)

We, Fred F. Lockwood and W. A. Pinckard, do solemnly swear that we will well and truly perform the duties of Flagmen, according to instructions given us, and to the best of our skill and ability in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Fred F. Lockwood, Flagman. W. A. Pinckard, Flagman.

[fol. 22] Subscribed and sworn to before me this 20th day of April, 1903. (Signed) J. D. Frazey, Notary Public. (Seal.)

We, Ed. P. Blanchard and F. E. Wright, do solemnly swear that we will well and faithfully execute the duties of chainmen, that we will level the chain on even and uneven ground, and plumb the tally pins, either by sticking or dropping the same, that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with the instructions given us, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Ed. P. Blanchard, Chainman. F. E. Wright, Chainman.

Subscribed and sworn to before me this 1st day of October, 1903. (Signed) Howard B. Carpenter, U. S. Surveyor and Astronomer.

I, Andrew Ferrara, do solemnly swear that I will well and truly perform the duties of moundman in the establishment of corners, according to the instructions given me, to the best of my skill and ability, in the Re-survey of the South Boundary of the State of Colorado.

(Signed) Andrew (his X mark) Ferrara, Moundman.

Subscribed and sworn to before me this 1st day of October, 1903. (Signed) Howard B. Carpenter, U. S. Surveyor and Astronomer.

Description of Instruments

Astronomical observations were made with a Wurdemann Zenith telescope, 25 ins. focal length and 2.1 ins. aperture.

This instrument was loaned me by the Department of the Interior. The line was projected with a transit made for me especially for

this line by Young and Sons of Philadelphia, Pa. It has a six inch [fol. 23] horizontal limb graduated to 30' of arc, and reading to single minutes by two double verniers placed opposite to each other. The vertical limb is five inches in diameter graduated to 30' of arc and reading by vernier to single minutes.

The instrument also has the Smith Solar attachment. The telescope is provided with stadia wires placed at the ratio of 1 in 100.

Two Philadelphia leveling rods 7 ft. long and sliding to 13 ft. graduated to feet, tenths and hundredths, and reading by vernier on target to thousandths of a foot.

Two steel tapes ¼ inch wide and 66 ft. or 1 chain in length, graduated to links.

One standard Chesterman Steel tape for comparison and adjustment of measuring tapes.

Two rod levels or plumb levels, used for guides in holding the rod vertical.

Two Aneroid Barometers, one 2¾ inch, with thermometer and one 2 inch.

Two Chronometers belonging to Mr. MacConnel, Hiatt No. 1051, Sidereal time, and Barraud No. 333 mean time.

Pursuant to instructions received from the Hon. the Commissioner of the General Land Office, Binger Hermann bearing date Washington, D. C., July 7th, 1902, I proceeded to Mancos, Colorado, perfected my organization of the astronomical corps and went to a point on the line between Colo. and N. Mex., as established by E. A. Darling in 1868, the point being near his 513th mile and at his astronomical monument No. 10, which is a block of sandstone about 10 x 15 ft. and 10 ft. high, marked Colorado on N., 1868 on E., N. Mex. on S., and 37 N. L. on W. from which another block of sandstone bears N. 20° W. 130 lks. dist. marked Colorado 1868.

I destroyed the marks on these stones. This corner on the rolling sand plain south of the Mancos River at the foot of rock cliffs about 600 ft. high.

My instructions direct me to "proceed to a point not less than 20 miles E. of the corner established and recognized as the S. W. cor. of Colorado, near which point you will select a convenient and suitable site for an astronomical station; and take careful observations for latitude." It was found to be impracticable to establish the [fol. 24] astronomical station further east than the Darling Astronomical Monument as it would place said station either in a deep canon subject to down currents of air or upon a high mesa the nearly perpendicular walls of which rise to a height of about 600 ft., making it impracticable to transport the Zenith telescope up the cliffs.

Astronomical Station No. 1 was established in open rolling country about two miles south of the Mancos River to the west and near the foot of cliffs of rock about 600 ft. high. The Darling Astronomical monument No. 10 bears S. 81° E. 11.51 chs. dist.

Set the iron pier for the Zenith telescope at this point and took observations during the nights of Sept. 21st, 22nd and 23rd, 1902.

Found the latitude of this point to be 36° 59' 53.16".

October 6th, 1902. Reached Astronomical Station No. 1 with the line party. Examined and adjusted the new Young and Son's transit, tested the tapes and stadia rods and put all tools and instruments in perfect adjustment.

At 6h 29m P. M., 1 m. t. I observe Polaris at eastern elongation and mark a point in the line thus found on a plug driven in the ground about 12 chs. N. of my station, Oct. 6th, 1902.

Oct. 7th, 1902 at 8h A. M. I lay off the azimuth of Polaris 1° 31.1' to the W. and mark a point in the true meridian thus found on a plug driven in the ground about 12 chs. N. of my station. The magnetic bearing of said true meridian is N. 14° 06' W. which gives the magnetic declination 14° 06' E.

I now run N. on this meridian 10.48 chs. to a point on the 37th parallel of N. Lat., determined by astronomical observations of Sept. 21st to 24th last.

From this point I lay off an angle from the meridian of 90° to the W. for the tangent to the parallel. In each of these observations and the subsequent turning of angles the mean of four sights was taken reversing the instrument at each sight.

Thence I run W. on a random line making the proper offsets N. to the parallel at the end of each mile, and at 16 miles and 70.85 chs. I intersect a meridian that passes through the point known as "The Four Corners," it being the S. W. cor. of the State of Colorado, the N. W. cor. of the Territory of New Mexico, the N. E. cor. [fol. 25] of the Territory of Arizona, and the S. E. cor. of the State of Utah, and being identical with the point closed upon at the terminus of the Boundary line between the State of Utah and the Territory of Arizona recently established by me. This cor. consists of a pile of stone in the center of which is the lower part of the corner stone 7 x 7 ins. firmly imbedded in the ground.

The upper part of this stone has been broken off since my visit to this corner June 29th, 1901. The fragments are still here and most of the marks are still visible upon them.

Altitude 5,500 ft.

Temperature 60°.

The bearings are as follows:

Chimney Rock on the Latra Mts. bears N. 15° 46' E. about twenty miles distant.

Darling's Peak on the Latra Mts. bears N. 36° 53' E.

Wilson's Peak (Ship Rock) bears S. 28° 42' E.

N. W. point of Sierra Carriso bears S. 54° 0' W.

Conical point on mesa bears N. 37° 20' W.

Conical point on N. end of this mesa bears N. 52° 20' E. 28.45 chs. distant.

Said cor. is 4.45 chs. S. of the intersection with my tangent and as the offset to the 37th parallel is 2.18 chs. N. of the tangent at this point it shows a falling of 6.63 chs. S. of the parallel. This answers to a correction of 40 lks. per mile in order to strike the parallel at a point 20 miles E. and gives the course of the true line N. 89° 46' E.

Oct. 9th at 6h 17m P. M., l. m. t. I observed Polaris at eastern elongation at "The Four Corners," and mark a point in this line on a stone about 15 chs. N. of my station.

Oct. 9th, 1902.

Oct. 10th, 1902. I examine the transit and find it in perfect adjustment, compare the steel tapes with the standard and find them of correct length.

At 7h 30m A. M. I lay off the azimuth of Polaris 1° 31 1′ to the W. and mark a point on the true meridian thus determined on a stone about 15 chs. N. of my station.

The magnetic bearing of the said true meridian is N. 14° 08′ W. this gives the magnetic declination 14° 08′ E.

[fol. 26] Thence I run on the

1st Mile

Altitude	Chs.	
5500 ft.		N. 89° 46′ E. on the true line. Across a flat mesa covered with black lave rock.
	18.00	East edge of mesa bears N. and S. ascend rocky volcanic ridge bears N. and S.
5600 ft.	20.88	Top of ridge about 100 ft. high, bears N. and S., descend over broken volcanic rock.
	42.00	Foot of ridge about 450 ft. below top. Enter San Juan Valley bears N. W. and S. E. thence over rolling sandy plain.
		I find that the 1st mile. cor. will fall in bend of San Juan River. Therefore, difference between measurements of 74.00 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 74.03 chs.
		By 2nd set 73.97 chs. the mean of which is
5000 ft.	74.00	I set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 4 ins. in the ground to bed rock for 1st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on the S. and O. 925 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable. No bearings.
		This cor. stands on the left bank of the San Juan River on a rock ledge about 25 ft. above the water, bank bears N. W. and S. E. about 10 chs. then N. E.
		Altitude 5500 ft.
		Temperature 80°.
	75.23	W. bank of San Juan River, course from N. E. to N. W. Stadia measurement across bend of river.
		The Stadia wires in the instrument are placed at ratio of 1 to 100 and by using either of them in

Altitude	Chs.	
		connection with the horizontal cross wire equals 1 to 200. Stadia rods are graduated in feet, tenths and hundredths, and reading by vernier on tar-
		[fol. 27] gets to thousandths of a foot. Rod held in a vertical position as indicated by rod level. The constant C.=focal length of lens which for this instrument is 1.15 ft. when the telescope is level and proportional when the telescope is elevated or depressed. See further explanation in report.
		Angles of elevation marked +.
		Angles of depression marked —.
		Von Geldern's table of constants used for computing horizontal distances.
		Angle 0°. Rod 11.49 double = 22.98 ft. 22.98 ft. + C. = 1.15 = 2299.13 ft. = 34.83 chs. + 75.23 chs. = 110.06 chs. — 80.00 chs. = 30.06 chs. on 2nd mile.
	80.00	Falls in river inaccessible.
		Land, mountainous and rolling.
		Soil, rocky and sandy, 4th rate.
		Vegetation, very scanty, a little greasewood.

2nd Mile

		N. 89° 46' E. on a true line.
	30.06	On left bank of San Juan River, a rocky bank about 30 ft. high bears N. E. and S. W. Thence by tape measurement over gently rolling sandy plain.
		Difference between measurements of 49.94 chs. by 2 sets of chainmen is 4 lks.; position of middle point.
		By 1st set 49.96 chs. by 2nd set 49.92 chs., the mean of which is 49.94 chs.
		49.94 chs. + 30.06 chs. =
5040 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in rocky ground for 2nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 2 M. stamped on the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable. No bearings.
		Land rolling plain.
		Soil, sandy and rocky.
		[fol. 28] Vegetation very scanty, some greasewood.
		Altitude 5040 ft.
		Temperature, 84°.

3rd Mile

Altitude	Chs.	
		N. 89° 46' E. on true line.
	4.37	River bluff bears N. W. and S. E. about 40 ft. above river.
		Stadia measurement.
		Angle 3°—; Rod 9.76 ft. single = 976 ft.
		Constant., 9973 × 9 76 = 973.35 + C.=1.15= 974.50 ft.=14.76 chs.+4.37 chs.=19.13 chs.
	17.00	Edge of water W. side of river, 1.50 chs. wide, course N. Water very muddy about 4 ft. deep, swift current.
	19.13	Right bank of river, about 5 ft. high, bears N. and S. Enter cottonwood timber.
	24.00	Leave timber, enter sagebrush flat, bears N. and S.
	72.00	Leave sagebrush flat, bears N. W. and S. E. ascend.
	74.00	Top of spur slope S. 50 ft. high, descend.
		Difference between measurements of 65.24 chs. by 2 sets of chainmen is 21 lks. position of middle point
		By 1st set 65.25 chs.
		By 2nd set 65.23 chs., the mean of which is 65.24 chs.
		65.24 chs. + 14.76 chs.
5050 ft.	80.00	Set an iron pipe 3 ins. dia. four feet long with flanges at the bottom 2 ft. in the ground at foot or rocky slope for 3rd mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 3 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable. No bearings.
		This cor. stands at foot of steep rocky slope on N. side of rocky canon.
		Land, rolling river bottom and bluffs.
		Soil, sandy and rocky, 2nd and 4th rate.
		Vegetation, cottonwood timber and sage brush.

[fol. 29]

Alt. 5050 ft. Temp. 70°.

4th Mile

		N. 89° 46' E. on a true line.
	2.00	Bottom of dry canon, course S. W. ascend.
	22.00	Top of bluff about 150 ft. high, bears S. about 6 chs., thence S. W. and on N. side of line N. E.
	51.50	Deep narrow dry canon, course S. Coal cropping near bottom.

Altitude	Chs.	
	77.00	Top of spur slope S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen in 6 lks. position of middle point.
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs. the mean of which is
5250 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in ground for 4th mile cor. A brass cap on the top of the pipe has raised letters Colo. on the N., N. M. on the S., and 4 M. stamped in the center.
		Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		Ship Rock bears S. 19° 30′ E. about 20 miles dist.
		Land, rough and broken.
		Soil, rocky and sandy, 4th rate.
		Vegetation, stunted greasewood.
		Land underlaid with at least one vein of bituminous coal.
		Alt. 5,250 ft.
		Temp. 70°.

5th Mile

		N. 89° 46″ E. on the true line.
		Descending over rolling land.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.
[fol. 30]		By 1st set 80.02 chs.
		By 2nd set 79.98 chs. the mean of which is
5150 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 5th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 5M. stamped in the center.
		Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist., and raised a mound of earth 5 ft. base 2 ft. high around the post.
		Chimney Rock on the Latra Mts. bears N. 34° 10′ E.
		Land, rolling.
		Soil, sandy, 3rd rate.
		Vegetation, scanty, grass and greasewood.
		Alt. 5,150 ft.
		Temp. 65° Oct. 10th, 1902.

Altitude	Chs.	
		Oct. 12th. Examined the adjustments of the transit and compared the steel tapes with the standard: found everything in adjustment this morning.

6th Mile

N. 89° 46' E. on a true line.
Ascend gradually over rolling land.

	10.70	Top of ridge bears N. and S. 50 lks. S. I find what I believe to be Darling's 325th mile cor. stone. A sandstone 16 x 10 x 6 ins. marked 325C. N. M. 1868. This stone was lying on top of the ground and had probably been moved from its original position. No sign of mound or pits in this vicinity. I searched the country thoroughly on both sides of my line from the four corners back to Mr. Darling's astronomical monument No. 10 near his 313th mile cor., and this is the only object I succeeded in finding bearing any of the Darling marks except the said
[fol. 31]		astronomical monument and its bearing rock. I destroyed the marks on this stone. Descend.
5150 ft.	31.60	Top of bluff W. bank of Mancos River about 30 ft. high, bears N. and S. An ancient ruin of stone circular in shape bears S. about 7.00 chs.
5075 ft.	34.50	Bed of Mancos River, 50 lks. wide, water in holes strongly alkali, course S.
	37.60	Top of E. bank of river bears N. and S. about 30 ft. high thence across the sagebrush flat.
		Difference between measurements of 80.00 chs by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs; the mean of which is
5200 ft.	80.00	Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 6th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 6 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. from cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		Chimney Rock bears N. 30° 14' E.
		Land, rolling.
		Soil, sand and clay 3rd rate.

Altitude	Chs.	
		Vegetation, grass, sage and greasewood, some willow brush along the stream.
		Alt. 5200 ft.
		Temp. 65°.

7th Mile

		N. 89° 46' E. on a true line. Ascend.
	34.00	Foot of ridge bears N. and S. Leave Manco River Valley.
	40.76	Top of spur slope N. Descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs; the mean of which is
5210 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 7th mile cor.
[fol. 32]		A brass cap on the top of the pipe has raised letters Cole. on N., S. M. on S. and 7M stamped in the center, and raised a mound of stone 5 ft. base 2 ft. high around the post.
		No bearings. Pits impracticable.
		This cor. stands on N. W. slope of gulch.
		Land, rolling.
		Soil, sandy and stony, 3rd rate.
		Vegetation, grass and sage.
		Alt. 5210 ft.
		Temp. 60°.

8th Mile

		N. 89° 46' E. on a true line.
		Over rolling hills.
	53.50	Bottom of dry ravine, course NW, ascend.
	61.00	Brow of hill bears N. E. and S. E., descend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs. the mean of which is
5200 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 8th mile cor. A brass cap on the top of the pipe has raised letters Cole. on N., N. M. on S. and 8M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. cor. 6 ft. dist. Raised a a mound of earth 5 ft. base 2 ft. high around the post.

Altitude	Chs.	
		This cor. stands on S. slope of bad land hill on a coal cropping.
		Land, rolling, bad land hills.
		Soil, sandy and clay, 3rd rate.
		Vegetation, grass and stunted sage, cactus and soapweed.
		Alt. 5290 ft. Temp. 60°.

9th Mile

		N. 89° 46′ E. on a true line.
[fol. 33]		Descending.
	18.60	Enter small valley, bears N. W. and S. E.
5150 ft.	25.00	Bottom of dry gulch banks 10 ft. high, course N. W.
	54.75	Leave valley bears N. W. and S. Ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen in 6 lks. position of middle point.
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
5380 ft.	80.00	Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 8th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 8 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around post.
		Chimney Rock bears N. 19° 33′ E.
		Jackson's Butte bears N. 58° 25′ E.
		Land, rolling.
		Soil, sandy and clay, 3rd rate.
		Vegetation, grass and stunted sage.
		Alt. 5380 ft.
		Temp. 60°.

10th Mile

		N. 89° 46′ E. on a true line.
	2.00	Ascend high spur slope N., descend.
	6.30	Brow of bluff bears N. and S.
	23.00	Bottom of dry ravine course N., 100 ft. deep, ascend.
5350 ft.	28.66	Point of spur slope N., descend.
5250 ft.	46.00	Bottom of dry ravine, course N. W., ascend.
5350 ft	48.00	On brow of bluff bears N. W. and S. E. Fos-

Altitude	Chs	
		siliferous sandstone ledges with indications of coal underneath.
	78.00	Dry gulch course N.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point.
[fol. 31]		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is
5250 ft	80.00	Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 10th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 10 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around post. This cor. stands on point of spur sloping N.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass and sage, very scanty.
		Alt. 5250 ft.
		Temp. 56°

11th Mile

		N. 89° 46' on a true line.
		Descend
	5.00	Dry gulch, course N. W.
5300 ft.	12.00	Top of ridge bears N. W. and S. E.
	65.00	Dry gulch course N. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is
5260 ft.	80.00	Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 11th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 11 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around post.
		Chimney Rock bears N. 12° E.
		Jackson's Butte bears N. 52° 40' E.
		Camel-back Butte bears S. 69° 31' E.
		Land gently rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, sage and cactus.
		Alt. 5260 ft.
		Temp. 56° Oct. 11th. 1902

Altitude	Chs.	
		I test the adjustments of the transit and compare the steel tapes with the standard. Find
[fol. 35]		everything correct and in adjustment.

12th Mile

		N. 89° 46′ E. on a true line descending.
	3.00	Bottom of dry ravine, course N. W., thence up general course of same.
5230 ft.	22.00	Leave ravine comes from S. E. Ascend along S. W. slope.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks., position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is
5300 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 12th mile cor. A brass cap on the top of the pipe has raised letters Colo. N., N. M., on S. and 12 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 3 ft. base 2 ft. high around the post.
		Chimney Rock bears N. 7° 34′ E.
		Jackson's Butte bears N. 48° E.
		Camel-back Butte bears S. 65° 27′ E.
		Wilson's Peak (Ship Rock) bears S. 0° 46′ W.
		Land, gently rolling.
		Soil, sand and clay 3rd rate.
		Vegetation, sage and cactus.
		Alt. 5300 ft.
		Temp. 70°.

13th Mile

		N. 89° 46′ E. on a true line.
		Over gently rolling land.
		Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is
5360 ft.	80.00	Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 13th mile
[fol. 36]		cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 13 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 3 ft. base 2 ft. high around the post.
		Mancos River about 1½ miles N.

Altitude	Chs.	
		Land, gently rolling. Soil, sand and clay, 3rd rate. Vegetation, sage, greasewood and cactus. Alt. 5360 ft. Temp. 70°.

14th Mile

		N. 89° 46' E. on a true line. Over gently rolling land. Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point. By 1st set 80.01 chs. By 2nd set 79.99 chs.; the mean of which is
5350 ft.	80.00	Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 14th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 14 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		Land, gently rolling. Soil, sand and clay, 3rd rate. Vegetation, grass, sage, greasewood and cactus, very scanty. Some grass will grow on this land when the season is not too dry. Altitude 5350 ft. Temp. 70°.

15th Mile

		N. 89° 46' E. on a true line. Over gently rolling land.
	43.00	Wagon road from Montezuma Valley to the San
[fol. 37]		Juan bears N. W. and S. E.
		Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is
5340 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the botton 2 ft. in the ground for the 15th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 15 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		Chimney Rock bears N. 5° W.

Altitude	Chs	
		Jackson's Butte bears N. 29° 20' E. Camel-back Butte bears S. 31° 20' E. Land, gently rolling. Soil, sand and clay, 3rd rate. Vegetation, very scanty greasewood. Alt. 5340 ft. Temp. 70°.

16th Mile

		N. 89° 46' E. on a true line. Over gently rolling land.
	1.00	Trail, bears N. and S.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks.; position of middle point By 1st set 80.02 chs. By 2nd set 79.98 chs.; the mean of which is
5225 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 16th mile cor A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 16 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor 6 ft. dist. and raised a mound of earth 3 ft. base 2 ft. high around the post. Land, gently rolling. Soil, sand and clay, 3rd rate. Vegetation, sage and greasewood.
[fol. 38]		Alt. 5225 ft. Temp. 70°.

October 12th, 1902

I examine the adjustments of the transit and compare the steel tapes with the standard and find all correct this morning.

17th Mile

		N. 89° 46' E. on a true line. Ascending gradually.
	1.50	Dry gulch, course N. W.
	52.00	Road from Navajo Spring (Ute Agency) to Fruitland bears N. W. and S. E.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point By 1st set 80.03 chs.

Azimuth Chs

By 2nd set 79.97 chs., the mean of which is
5350 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 17th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 17 M stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Chimney Rock bears N. 13° 03' W.
Jackson's Butte bears N. 11° 01' E.
N. W. point of high cliff bears S. 5° 24' E. about ½ mile dist.
Camel-back Butte bears S. 22° 18' W.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, very scanty, greasewood and cactus.
Alt. 5350 ft.
Temp. 48°

18th Mile.

N. 89° 46' E. on a true line.
Leave valley and ascend along N. slope over sharp
[fol. 39] ridges coming from south wall of canon.
19.40 Top of sharp spur, slope N. about 300 ft. above last mile cor. South wall of canon about 5 chs. S. Bottom of canon about 15 chs. N. North wall of canon about 3/4 of a mile N.
Thence along very steep N. slope.
Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point.
By 1st set 80.06 chs.
By 2nd set 79.94 chs., the mean of which is
5300 ft. 80.00 Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2ft. in the ground for 18th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 18 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable. This cor. stands at foot of slope in gulch, course N.
Land, rough and broken.
Soil, clay and sand, very rocky, 4th rate.
Vegetation, scanty sage and greasewood.
Alt. 5300 ft.
Temp. 60°
N. 89° 46' E. on a true line.

19th Mile

Altitude	Chs	
		Along foot of slope from S. wall of canon over dry gulches running North.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 10.05 chs.
		By 2nd set 79.97 chs.; the mean of which is
5350 ft.	80.00	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 19th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N. M. on S. and 19 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
[fol. 40]		This cor. stands in dry gulch, course N. Land, rough and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass and sage, very scanty.
		Alt. 5350 ft.
		Temp. 70°.

20th Mile

		B. S. 89° 46' E. on a true line.
		Ascend over rolling and broken ground.
		Difference between measurements of 34.09 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 34.10 chs.
		By 2nd set 34.08 chs.; the mean of which is
5300 ft.	34.09	Stadia measurement.
		Angle, 11°; Rod 10.81 double = 21.62 ft.
		Constant. 9636 × 21.62 ft. = 2082.30 ft. + C. = 1.13 = 2084.43 ft. = 31.58 chs. + 34.09 chs. = 65.67 chs.
	50.00	Dry bed of stream, 20 lks. wide, 10 ft. deep bottom of canon, course N. W.
	55.00	Foot of rock cliffs bears N. W. and S. E.
5750 ft.	65.67	Stadia point, top of cliffs, bears N. W. and S. E. about 450 ft. high; thence over mesa enter scrub cedar and pinon timber.
		Thence by tape measurement.
		Difference between measurements of 14.33 chs. by 2 sets of chainmen is nothing; the mean is 14.33 65.67 —
5750 ft.	80.00	This being the point 20 miles E. of the S. W. cor. of the State of Colorado, I set astronomical Monument No. 1, on 37th parallel.

Altitude Chs.

A sand stone 12 x 12 ins. by 6 ft. long 3 ft. in the ground.
This monument is dressed 10 ins. down from the top on all 4 sides, said sides facing the cardinal points, and marked with letters 2 ins. square graven in the stone, on the N. Colo.; on the E. 37° N. L.; on the S. N. Mex.; on the W. 20M; 1902. Dug pits 36 x 36 x 18 ins. N. S. and W. of the monument 6ft. dist.

[fol. 41] Found it impracticable to dig E. pit owing to its place being covered by a large cedar stump. Raised a mound of earth and stone 5 ft. base 2 ft. high around the monument.
The W. Pinnacle of Ship Rock bears S. 22° 06′ W.
A cedar tree 10 ins. dia. bears N. 8° E. 189 lks. dist. Mkd. Colo., 20 M., B. T.
A cedar tree 8 ins. dia. bears S. 44° E., 39 lks. dist., marked N. M., 20 M., B. T.
A cedar tree 8 ins. dia. bears N. 68° 40′ W. 101 lks. dist. Mkd. Colo.; 20M.; B. T.
No tree suitable for bearing tree within limits in S. W. quadrant.
Land, rough and broken.
Soil, rocky and sandy, 4th rate.
Vegetation, scrub greasewood, in valley, and scrub cedar and pinon timber on mesa.
Alt. 5750 ft.
Temp. 64°.

Oct. 13th, 1902.

At the 20th mile cor., Oct. 14th, 1902, at 5h 58m P. M. i. m. t. after carefully adjusting the transit, I observe Polaris at eastern elongation and mark a point in this line on a plug driven in the ground N. of my station.

Oct. 14th, 1902.

Oct. 15th, 1902, I lay off the azimuth of Polaris 1° 31′ to the W. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station.
The magnetic bearing of the meridian is N. 13° 50′ W. This gives the magnetic declination 13° 50′ E.
I now lay off an angle of 90° from the N. to the east for the tangent to the paralled. In all these observations and the subsequent turning of angles the mean of 4 sights was used with the instrument reversed at each sight.

[fol. 42]

21st Mile

Altitude	Chs.	
		East on the tangent to the parallel.
		Over broken rocky ground and through scrub timber.
	30.00	Top of ridge bears N. W. and S. E. about 50 ft. above last cor. Descend.
	50.00	Leave timber bears N. W. and S. E.
		Difference between measurements of 76.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 76.02 chs.
		By 2nd set 75.98 chs.; the mean of which is
5700 ft.	76.00	N. .73 of a link from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 4 ins. in the ground to bed rock for 21st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 20.95 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		Alt. 5700 ft.
		Temp. 80°.
		This corner was placed at this point because the point at 80 chs. fails in the canon.
	72.21	Stadia point on bluff W. of cor.
		Stadia measurement,
		Angle 5° →; Rod 6.60 ft. double = 1320 ft.
		Constant .9924 × 1320 ft. = 1309.97 ft. + C. = 1.14 = 1311.11 ft.
		1311.11 ft. = 19.86 cha. + 72.21 chs. = 92.07 chs. + 80 chs. = 12.07 chs.
	80.00	Comes on steep slope of canon wall, impracticable to establish the cor. at this point.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, grass, sage, scrub cedar and pinon timber.

22nd Mile

		S. 89° 59′ E. on the tangent to the parallel.
[fol. 43]		Descend over rough broken country.
	6.00	Bottom of rock canon 200 ft. deep, heads about 10 chs. N. W.
		Course S. E. about ¼ mile S. E. canon joins larger one from N. E. to S. W.
	12.07	Stadia point on rocky spur, slope S. 125 ft. high.
		Stadia measurement.

Altitude	Chs.	
		Angle 3° +; Rod 11.55 ft. double. = 2310 ft. 2310 ft. × .9973 = 2303.76 ft. + C. = 1.15 ft. = 2304.91 ft. = 34.92 chs. + 12.07 chs. = 46.99 chs.
5500 ft.	22.00	Bottom of main canon, course S. W.
	46.99	Stadia point.
		Stadia measurement.
		Angle 3° +. Rod 9.69 ft. single = 969 × .9973 = 966.38 ft. + C. = 1.15 ft. = 967.53 ft. = 14.66 chs. + 46.99 chs.
55	61.65	Stadia point.
		Stadia measurement,
		Angle 3° +: Rod + 9.66 ft. single = 966 ft. × .9973 = 963.30 + C. = 1.15 = 964.45 ft. = 14.61 chs. = 61.65 chs.
	76.26	Stadia point on point of rocks S. wall of canon.
		Tape measurement, 3.74 chs. + 76.26 chs. =
5750 ft.	80.00	N. 3 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 22nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 22M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands in brush at foot of rocky bluff on S. side of canon.
		Land, roug hand broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, grass, sage and willow brush, scattering scrub cedar and pinon.
[fol. 44]		Alt. 5750 ft.
		Temp. 75°.

23rd Mile

S. 89° 59′ E. on the tangent to the parallel. Following up general course of rough canon.

5600 ft	9.50	Bottom of canon, dry, course N. W.; ascend.
5700 ft.	15.39	Point of rocks slope S.
		Stadia measurement,
		Angle 3° +. Rod 11.80 ft. double = 2360 ft. × .9973 = 2353.63 + C. = 1.15 = 2354.78 ft. = 35.67 chs. + 15.39 chs. = 51.06 chs.
5600 ft.	39.00	Bottom of rocky canon comes in from N. E. joins main canon about 2 chs. S. of the line; ascend cliffs.
5800 ft.	51.06	Stadia point on top of wall of canon, altitude 5800 ft., bears N. E. and S. E. Enter timber, thence over high table land or mesa.

Altitude	Chs.	
	74.00	Leave timber bears N. and S.
		Difference between measurements of 44.33 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 44.34 chs.
		By 2nd set 44.32 chs.; the mean of which is 44.33 chs. + 35.67 chs. =
5900 ft.	80.00	N. 7 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 23rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 23 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist., and raised a mound of earth 5 ft. base 2 ft. high around the post.
		Land, rough and broken.
		Soil, sandy and rocky, 4th rate.
		Vegetation, grass, sage and willow brush, and scrub cedar and pinon.
		Alt. 5900 ft.
		Temp. 56°.

[fol. 45] 24th Mile

		S. 89° 58' E. on the tangent to the parallel.
		Ascend over rolling rocky land.
5900 ft.	70.26	Foot of bluffs bears N. W. and S. E.; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is
5970 ft.	80.00	N. 12 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 24th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 24 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		Land, rolling.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, grass, sage and cactus, scattering timber south of the line.
		Alt. 5970 ft.
		Temp. 50°.

Oct. 15th, 1902.

Altitude. Chs.

I examine the transit and find it in adjustment, I compare the steel tapes with the standard and find them of correct length.

25th Mile

S. 89° 57′ E. on the tangent to the parallel.
Ascend rocky slope.

13.03 Stadia point, thence by
Stadia measurement:
Angle 17° + ; Rod 10.44 ft. double = 2088 ft. × .9145 = 1909.48 ft. 1909.48 ft. + C. = 1.10 =1910.58 ft. = 28.95 chs. + 13.03 chs. =

41.98 On top of cliffs W. edge of high mesa bears N. W. and S. E. about 800 ft. high, enter scrub cedar and pinion, thence over rocky mesa.
Difference between measurements of 51.05 chs. by 2 sets of chainmen is 4 lks. position of middle point.

[fol. 46] By 1st set 51.07 chs.
By 2nd set 51.03 chs.; the mean of which is 51.05 chs. + 28.95 chs. =

6800 ft. 80.00 N. 19 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 3 ins. in the ground to bed rock for the 25th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., and N. M. on S. and 25M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
A pinion tree 10 ins. dia. bears S. 52° 50′ W. 86 lks. dist. Mkd. N. M., 25M., B. T. No other trees within limits suitable for bearing trees.
Land, rough and broken.
Soil, rocky and sandy, 4th rate.
Vegetation, some grass and sage on slope and scrub cedar and pinion on mesa.
Alt. 6800 ft.
Temp. 75°. Oct. 16th, 1902.

I examine the transit and compare the tapes with the standard, find all correct this morning.

26th Mile

Altitude	Chs.	
		S. 89° 57′ E. on the tangent to the parallel.
	6.00	Bottom of dry rocky gulch, course N. E.
	12.08	On sharp rocky spur slope N.
	40.00	Bottom of dry ravine about 400 ft. deep, course N. E. about 5 miles to Mancos Canon.
6800 ft.	61.00	Sharp narrow rocky spur, slope N.
	71.75	Stadia point on high rock spur, slope N. E.
		Stadia measurement:
		Angle 6° — ; Rod 13.90 ft. double = 2600 ft. × 9891 = 2571.66 ft. + C = 1.14 ft. = 2572.80 ft. = 38.98 chs. + 71.75 chs. = 110.73 chs. = 110.73 chs. — 80.00 chs. = 30.73 chs. on 27th mile.
[fol. 47]		As I find the point at 80.00 chs. will come in canon and is inaccessible therefore at
6850 ft.	73.00	N. 24½ lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom on bare rock for 26th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 25½ M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		Tris cor. stands on top of perpendicular wall.
		Alt. 6850 ft.
		Temp. 70°.
	80.00	In canon, inaccessible.
		Land, high mesa cut by canons.
		Soil, rocky and sandy, 4th rate.
		Timber, scrub cedar and pinon.

27th Mile

		S. 89° 56′ E. on the tangent to the parallel.
	15.00	Bottom of rocky chasm, about 500 ft. deep, course N. E.
	30.73	Stadia point on long narrow ridge bears N. and S. about 300 ft. above bottom of canon.
	60.00	Bottom of dry canon about 350 ft. deep, course N. E.; ascend.
		Difference between measurements of 49.27 chs. by 2 sets of chainmen is 1 lks. position of middle point.
		By 1st set 49.29 chs.
		By 2nd set 49.25 chs.; the mean of which is 49.27 chs.
		49.27 chs. + 30.73 chs. =

Altitude	Chs.	
	80.00	Comes on steep wall of canon; impracticable to establish the corner. Land, very rough and broken. Soil, rocky and sandy, 3rd rate. Timber, scrub cedar and pinon.

28th Mile

[fol. 48]		S. 89° 55' E. on the tangent to the parallel. Ascend rocky canon wall.
6700 ft.	1.20	N. 37 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bare bed rock for 27th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 27.015 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable. This cor. stands on top of wall of canon bears S. and N. E. No trees within limits suitable for bearing trees. Alt. 6700 ft. Temp. 70°. Descend through scattering scrub cedars.
	30.00	Dry gulch, course N. E.
	40.50	Top of ridge bears N. and S.; descend.
		Difference between measurements of 62.30 chs. by 2 sets of chainmen is 6 lks. position of middle point. By 1st set 62.33 chs. By 2nd set 62.27 chs.; the mean of which is
6700 ft.	62.30	Stadia point on brink of ravine bears N. and S. Stadia measurement. Angle 2° — ; Rod 10.43 double = 2086 ft. × 9988 = 20834.50 ft. + C. = 1.15 ft. = 20845.65 ft. = 31.58 chs. + 62.30 chs. = 93.88 chs. — 80 chs. = 13.88 chs. on the 29th mile.
	80.00	Comes in bottom of dry rocky canon about 200 ft. deep, course N. W. Impracticable to establish the cor. Land, rough and broken. Soil, rocky and sandy, 3rd rate. Timber, scrub cedar and pinon.

Oct. 17th, 1902.

I test the levels and collimation of transit, and compare the tapes with the standard; find all correct.

[fol. 49]

29th Mile

Altitude	Chs.	
		S. 89° 53' E. on the tangent to the parallel.
	13.88	Stadia point, tape measurement.
6500 ft.	14.00	N. 51 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bare bed rock for 28th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 28.175 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable. Timber too scrubby for bearing trees. Alt. 6500 ft. Temp. 70°.
	30.00	Top of ridge bears N. W. and S. E.
	53.00	Bottom of dry ravine, course N. W.
		Difference between measurements of 66.00 chs. by 2 sets of chainmen is 2 lks. position of middle point. By 1st set 66.01 chs. By 2nd set 65.99 chs.; the mean of which is 66.00 chs. + 14.00 chs.
6500 ft.	14.00	N. 51 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 29th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 29 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 3 ft. base 2 ft. high around the post. No trees within limits suitable for bearing trees. Land, rough and broken. Soil, rocky and sandy, 3rd rate. Timber, scrub cedar and pinon. Alt. 6500 ft. Temp. 75°.

30th Mile

		S. 89° 54' E. on the tangent to the parallel.
	17.00	Top of ridge bears N. and S.; descend.
6300 ft.	59.00	On top of canon wall bears N. W. and S. E. canon about 400 ft. deep and too wide to use stadia. Therefore set a flag across canon on tangent. Ran base line S. 0° 06' W. at right angles to tangent 20.00 chs. from S. end of base line flag on tangent line across canon bears N. 69° 26' E.
[fol. 50]		Angle from base line 69° 20'.

Altitude Chs.

Tan. 69° 20' × base 20 chs. = 53.02 chs. = distance across canon.
53.02 chs. + 59.60 chs. = 112.62 chs. — 80.00 chs. = 32.62 chs. on 31st mile.

80.00 Falls in bottom of rough rocky canon about 400 ft. deep.
Main canon comes from N. W., short branch comes from N. Course S. about ½ mile to Salt Canon. Impracticable to establish the corner.
Land, rough and rocky.
Soil, rocky, sand and clay, 3rd rate.
Vegetation, grass, sage, scrub cedar and pinon timber.

October 18th, 1902.

31st Mile

S. 89° 53' E. on the tangent to the parallel.

6200 ft. 32.62 Point at E. end of triangulation.
N. 82 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock for 30th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on the S. and 30.408 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post.
Pits impracticable.
Ute Peak bears N. 38° 20' W.
Ship Rock bears S. 41° 40' W.
No trees within limits suitable for bearing trees.
This cor. stands on wall of canon bears N. and S.

[fol. 51] Alt. 6200 ft.
Temp. 64°.

6200 ft. 49.50 On W. wall of canon, bears N. and S.
Descend over rocks.

5900 ft. 77.00 Dry bed of stream 10 lks. wide in bottom of canon, course S.

77.50 Trail, bears N. E. and S. W.
Difference between measurements of 47.38 chs. by 2 sets of chainmen is 8 lks. position of middle point.
By 1st set 47.42 chs.
By 2nd set 47.34 chs.; the mean of which is 47.38 chs.
47.38 chs. + 32.62 chs. =

5900 ft. 80.00 N. 92 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 31st mile cor.

Altitude	Chs.	
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 31 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		This cor. stands in N. branch of Salt Canon. course S. W. about ½ mile to main canon.
		No trees within limits suitable for bearing trees.
		Land, rough and broken.
		Soil, sand and clay, very rocky, 3rd rate.
		Vegetation, grass, sage, scrub cedar and pinon.
		Alt. 5900 ft.
		Temp. 80°.

32nd Mile

		S. 89° 53' E. on the tangent to the parallel.
		Ascend steep rocky canon wall.
	23.32	On top of canon wall about 300 ft. above corner, bears N. E. and S. W.
	32.00	Dry ravine, course N. W.
	60.00	Dry ravine, course N. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point.
[fol. 52]		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
6150 ft.	80.00	N. 110 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 32nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 32 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limits suitable for bearing trees.
		Land, rough and broken, very rocky.
		Soil, sand and clay, 4th rate.
		Vegetation, sage, scrub cedar and pinon.
		Alt. 6150 ft.
		Temp. 70°.

Oct. 18th, 1902.

I examine the levels and line of collimation of transit, and compare the steel tapes with the standard and find everything in adjustment.

33rd Mile

Altitude	Chs.	
		S. 89° 52′ E. on the tangent to the parallel.
	50.00	Head of canon, course S. E.
	73.00	Leave timber bears N. E. and S. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
6150 ft.	80.00	N. 129 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 33rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 33 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist., Raised a mound of earth 5 ft. base 2 ft. high around the post.
[fol. 53]		No trees within limits.
		Land, rolling.
		Soil, sand and clay, 4th rate.
		Vegetation, sage, scrub cedar and pinon.
		Alt. 6150 ft.
		Temp. 80°.

34th Mile

		S. 89° 52′ E. on the tangent to the parallel.
		Over gently rolling land.
	6.00	Enter scrub cedar and pinon, timber, bears N. and S.
	72.30	Top of ridge, bears N. and S.; descend.
	78.00	Dry gulch, course S. E.; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
6210 ft.	80.00	N. 150 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 1 ft. in the ground to bed rock for 34th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. M. on S. and 34 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		A pinion tree 6 ins. dia. bears N. 2° 10′ E. 50 lks. dist. mkd. Colo. 34 M., B. T.
		A pinion tree 6 ins. dia. bears S. 24½° W., 63 lks. dist., marked N. M., 34 M., B. T.
		No other trees within limits suitable for bearing trees.

Altitude	Chs	
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage, scrub cedar and pinion.
		Alt. 6,210 ft.
		Temp. 76. Oct. 20th, 1902

35th Mile

[fol. 54]

		I examine the transit and compare the steel tapes with the standard, find all correct.
		S. 89° 51′ E. on the tanget to the parallel.
	14.20	Trail bears N. and S.
	17.52	Top of spur slope S.
		Stadia measurement.
		Angle 0° ; Rod 11.17 double = 2.234 ft. + C. = 1.15 ft. = 2.235.15 ft. = 33.86 chs. + 17.52 chs. = 51.38 chs.
6200 ft.	21.00	On W. wall of canon bears S. and N.
	40.00	Bottom of canon about 350 ft. deep, dry, course S. There is a water pocket about ¾ of a mile N in this canon.
6200 ft.	51.38	On E. wall of canon bears N. and S., thence by tape measurement.
		Difference between measurements of 46.14 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 46.16 chs.
		By 2nd set 46.12 chs., the mean of which is 46.14 chs. + 38.86 chs. =
6200 ft.	80.00	N. 172 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 35th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 35 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinion tree 8 ins. dia. bears N. 15° 20′ E. 36 lks. dist. marked Colo. 35 M., B. T.
		A pinon tree 8 ins. dia. bears S. 58° 10′ W. 88 lks dist. marked N. M., 35 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, rolling and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage and cactus, scrub cedar and pinion.
		Alt. 6,200 ft.
		Tempt 80°.

[fol. 55]

36th Mile

Altitude	Chs.	
		S. 89° 30' E. on the tangent to the parallel.
		Over mesa and through scrub timber.
	75.00	Dry gulch, course N. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs., the mean of which is
6100 ft.	80.00	N. 1.96 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 36th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 36 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinion tree 10 ins. dia. bears N. 60° 30' W. 44 lks. dist. marked Colo. 36 M., B. T.
		A pinion tree 12 ins. dia. bears S. 21° W. 76 lks. dist. marked N. M. 36 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, nearly level.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, cactus, scrub cedar and pinion.
		Alt. 6,100 ft.
		Temp. 82°.

37th Mile

		S. 89° 30' E. on the tangent to the parallel.
		Over nearly level mesa, through scrub timber.
		Difference between measurements of 80 chs. by 2 sets of chainmen is nothing, the mean is
6536 ft.	80.00	N. 2.21 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 1 ft. in the ground to bed rock for 37th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 37
[fol. 56]		M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		A pinion tree 10 ins. dia. bears N. 62½° E. 26 lks. dist. marked Colo. 37 M., B. T.
		A pinion tree 14 ins. diam. bears S. 21° E. 49 lks. dist. marked N. M., 37 M., B. T.
		A pinon tree 7 ins. dia. bears N. 46° 30' W. 25 lks. dist. marked Colo., 37 M., B. T.
		No trees within limits S. W. suitable for bearing trees.

Altitude	Chs.	
		Land, nearly level mesa.
		Soil, sand and clay, 2rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6,530 ft.
		Temp. 70°. Oct. 21st, 1902

I examine the transit and compare the steel tapes with the standard, find all correct.

38th Mile

		S. 89° 49' E on the tangent to the parallel.
	17.00	Dry gulch, course N. W.
6530 ft.	30.90	Top of ridge bears N. W. and S. E.
6500 ft.	41.00	On W. wall of canon, bears N. W. and S. E.; descend.
6100 ft.	60.00	Bottom of canon, dry, bed of stream 10 lks. wide, course S. E.
		The W. branch of Barker Arroyo about 400 ft. below top of wall.
9	63.00	Trail bears N. W. and S. E.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks. position of middle point.
		By 1st set 80.07 chs.
		By 2nd set 79.93 chs.; the mean of which is
6100 ft.	80.00	N. 247 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 38th mile
[fol. 57]		cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 38 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on W. side of low spur that slopes S.
		No trees suitable for bearing trees within limits.
		Land, rough and broken.
		Soil, sand clay, 3rd rate.
		Vegetation, grass, sage and cactus, scrub cedar and pinion timber.
		Alt. 6,100 ft.
		Temp. 70°.

At the 38th mile cor. at 5h 26m P. M. 1m. t., I observe Polaris at eastern elongation. Though still daylight the star is plainly visible through the transit telescope. I mark a point in this line on a plug driven in the ground N. of my station.

October 22nd, 1902.

Altitude	Chs.	
		October 23rd, at 7h. 30m A. M. I lay off the azimuth of Polaris 1° 31.1′ to the W. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station. The magnetic bearing of the meridian is N. 13° 50′ W., which gives magnetic variation 13° 50′ E. I now lay off 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used, the instrument being in perfect adjustment, and the telescope reversed at each sight. I compare the steel tapes with the standard and find them of correct length.

39th Mile

[fol. 58]		East on the tangent to the parallel. Ascend over S. slope.
6150 ft.	6.00	Top of spur slope S. Stadia measurement, Angle 8° +; Rod 12.70 double = 2,540 ft. × .9806 = 2,490.72 ft. = 2,490.72 ft. + C. = 1.14 ft. = 2,491.86 ft. = 37.75 chs. + 6.00 chs. = 43.75 chs.
6100 ft.	20.00	Bottom of dry canon, course S.; ascend.
	43.75	Stadia point, thence by tape measurement.
6500 ft.	46.00	On top of wall of canon, about 400 ft. above bottom, bears S. W. and N. E. Stadia measurement, Angle 0°, Rod 10.20 double = 2,040 ft. + C. = 1.15 ft. = 2,041.15 ft. 2,041.15 ft. = 30.92 chs. + 46.00 = 76.92 chs.
6400 ft.	52.00	Dry ravine, course S. E.; ascend.
	76.92	On rocky south slope, stadia point. Stadia measurement, Angle 5° +, Rod 10.40 ft. single = 1040 × .9924 = 1032.09 + C. = 1.14 ft. = 1,033.23 ft. = 15.65 chs. + 76.92 chs. = 92.57 chs. − 80 chs. = 12.57 chs. on 40th mile.
	80.00	Falls on rocky S. slope; impracticable to establish cor. here. Land, very rough and broken. Soil, sand and clay, 3rd rate. Vegetation, grass, sage, scrub, cedar and pinon.

40th Mile

Altitude	Chs.	
		S. 89° 59′ E. on the tangent to the parallel.
	12.57	On wall of canon, bears N. W. and S. E.
6675 ft.	13.37	N. 1 lk. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 10 ins. in the ground to bed rock for 39th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 39.167.M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
[fol. 59]		No trees within limits suitable for bearing trees. Alt. 6675 ft. Temp. 80°.
	24.65	Brow of cliffs, bears N. E. and S. E.; descend.
	36.00	Dry rocky ravine, 300 ft. deep, course S.; ascend along rocky south slope.
		Difference between measurements of 66.63 chs. by 2 sets of chainmen is 10 lks. position of middle point
		By 1st set 66.68 chs.
		By 2nd set 66.58 chs.; the mean of which is 66.63 chs.
		66.63 chs. + 13.37 chs. =
6575 ft.	80.00	N. 3 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 40th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 40 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on rocky spur sloping S. No trees within limits large enough for bearing trees. Land, very rocky, rough and broken. Soil, sand and clay, [illegible] rate. Vegetation, grass sage and cactus, scrub cedar and pinon. Alt. 6575 ft. Temp. 70°.

41st Mile

		S. 89° 59′ E. on the tangent to the parallel. Ascend.
	2.60	Top of Spur slope S. Stadia measurement, Angle 9° +, Rod 10.62 double = 2124 ft. × 9755 = 2071.96 ft. + C. = 1.13 ft. = 2073.09 ft. = 31.42 chs. + 2.60 chs. = 34.02 chs.

Altitude	Chs.	
	15.00	Bottom of dry canon, course S. W., 100 ft. deep.
[fol. 60]		
	34.02	On wall of canon, bears N. E. and S. W., about 200 ft. above bottom.
		Ascend by tape measurement.
		Difference between measurements of 48.58 chs. by 2 sets of chainmen is 4 lks. position of middle point
		By 1st set 48.60 chs.
		By 2nd set 48.56 chs.; the mean of which is 48.58 chs.
		48.58 chs. + 31.42 chs. =
6875 ft.	80.00	N. 7 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 41st mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 41 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable
		A pinon tree 6 ins. dia. bears N. 85° 20′ E. 62 lks. dist. marked Colo., 41 M., B. T.
		A pinon tree 10 ins. dia. bears S. 17° 20′ W. 84 lks. dist. marked N. M., 41 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, grass, sage, scrub cedar and pinon.
		Alt. 6875 ft.
		Temp. 58°.
		October 23rd, 1902.

42nd Mile

		S. 89° 58′ E. on the tangent to the parallel.
	.10	Dry gulch course N.; ascend.
	15.42	Top of ridge bears N. and S.; descend.
	75.00	Top of spur slope south.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point.
[fol. 61]		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is
7000 ft.	80.00	N. 12 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 42nd mile cor. A brass cap on the top of the pipe has

Altitude	Chs.	
		raised letters Colo. on N., N. M. on S. and 42 M stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 6 ins. dia. bears N. 16° 40′ E 66 lks. dist. marked Colo., 42 M., B. T.
		A pinon tree 8 ins. dia., bears S. 37° 40′ W 47 lks. dist. marked N. M., 42 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, rough and rocky.
		Soil, sand and clay, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 7000 ft.
		Temp. 70°.

43rd Mile

		S. 89° 57′ E. on the tangent to the parallel Ascend.
	7.32	Top of spur slope E.
		Stadia measurement.
		Angle 0°, Rod 12.84 double = 2568 ft. + C. = 1.15 ft. = 2569.15 ft. = 38.92 chs. + 7.32 chs = 46.24 chs.
	33.00	Bottom of cañon about 300 ft. deep, dry, course S. W.
	46.24	Stadia point, thence by tape measurement,
7000 ft.	49.00	Top of ridge bears N. W. and S. E.; altitude 7000 ft.
	51.53	Point of spur slope E.; descend.
	76.00	Bottom of dry ravine, course S. E. about 100 ft. deep.
		Difference between measurements of 41.08 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 41.09 chs.
[fol. 62]		By 2nd set 41.07 chs.; the mean of which is 41.08 chs. + 38.92 chs.=
	80.00	Falls on steep side of rocky gulch, impracticable to establish the cor. at this point.
		Land, rough and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, scrub cedar and pinon.

October 25th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

44th Mile

Altitude	Chs.	
		S. 89° 57′ E. on the tangent to the parallel.
6725 ft.	4.00	Top of spur slope S. E.
		N. 19 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 42 d mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 43.05 M. stamped in the center. Raised a mound of earth 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 12 ins. dia. bears N. 29° E. 29 lks. dist. marked Colo. 43.05 M. B. T.
		A pinion tree 7 ins. dia. bears S. 68° E. 55 lks. dist. marked N. M., 43.05 M. B. T.
		A cedar tree 12 ins. dia. bears S. 15° 15′ W. 97 lks. dist. marked N. M., 43.05 M., B. T.
		A cedar tree 12 ins. dia. bears N. 78° 10′ W. 78 lks. dist. marked Colo., 43.05 M., B. T.
		Alt. 6725 ft.
		Temp. 65°.
	8.00	Dry ravine, course S. E., about 100 ft. deep; ascend.
	12.30	Top of spur, 100 ft. high, slope S. E.; descend.
	18.00	Dry ravine Course S. E., about 100 ft. deep, ascend.
	24.50	Top of spur slope S. E.; ascend.
	40.00	Dry ravine course S. E.; ascend.
	48.00	Top of spur slope nearly E.; descend.
[fol. 63]		Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.: the mean of which is
6650 ft.	80.00	N. 27 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 44th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 44.80 stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 5 ins. dia. bears N. 44°, 45′ E. 35 lks. dist. marked Colo., 44 M., B. T.
		A pinion tree 12 ins. dia. bears S. 49° W. 116 lks. dist. marked N. M., 44 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, rolling and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scrub cedar and pinon.

Altitude	Chs.	
		Alt. 6650 ft.
		Temp. 70°.

45th Mile

S. 89° 56' E. on the tangent to the parallel.
Descend.
Stadia measurement.
Angle 3° —, Rod 9.61 double=1922 ft. ×.9973 =1916.81 ft. + C.=1.15 ft.=1917.96 ft.=29.03 chs.

20.00 Bottom of box cañon, about 200 ft. deep, course S. E.; ascend.

29.06 Stadia point, thence by tape measurement,

3.38 On spur slope S. E., about 109 ft. above bottom canon.
Stadia measurement.
Angle 3° —, Rod 11.82 single=1182 ft. × .9973 =1178.81 ft. + C.=1.15 ft.=1179.96=17.88 chs. + 33.38 chs. = 51.26 chs.

47.60 Bottom of rocky gluch, course S. E.; ascend.

[fol. 64] 51.26 Stadia point, thence by tape measurement,

70.00 Top of spur, slope S. E.

74.00 Dry gluch, course S. E.

Difference between measurements of 33.06 chs. by 2 sets of chainmen is 4 lks. position of middle point
By 1st set 33.08 chs.
By 2nd set 33.04 chs.; the mean of which is *is* 33.06 chs. + 46.94 chs.=

6200 ft. 80.00 N. 37 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock for 45th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S., and 45 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post.
Pits impracticable.
A pinon tree 7 ins. dia. bears N. 37° 40' 75 lks. dist. marked Colo., 45 M., B. T.
A pinon tree 12 ins. dia. bears S. 25° 10' E. 90 lks. dist. marked N. M., 45 M., B. T.
A pinon tree 8 ins. dia. bears S. 35° 20' W. 77 lks. dist. marked N. M., 45 M., B. T.
A pinon tree 6 ins. dia. bears N. 25½° W. 110 lks. dist. marked Colo., 45 M., B. T.
Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, scrub cedar and pinon.

Altitude	Chs.	
		Alt. 6200 ft. Temp. 70°.
		October 26th, 1902.
		I examine the levels and collimation of transit and compare the steel tapes with the standard, find all in adjustment.
		46th Mile
		S. 89° 55′ E. on the tangent to the parallel.
		Descend through scrub timber.
	16.75	Wood road bears N. W. and S. E.
	74.00	Wood road on spur bears N. W. and S. E.
[fol. 65]		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs., the mean of which is
5910 ft.	80.00	N. 49 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 46th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 46 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 10 ins. dia. bears N. 14° 45′ W. 53 lks. dist. marked Colo., 46 M, B. T.
		A cedar tree 7 ins. dia., bears S. 11° 45′ E. 90 lks. dist. marked N. M., 46 M., B. T.
		No other trees within limits suitable for bearing trees.
		This cor. stands on edge of dry gulch, course nearly E.
		Land, rolling.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 5910 ft.
		Temp. 70°
		47th Mile
		S. 89° 55′ E. on the tangent to the parallel.
		Descend along dry gulch, leave timber, bears N. E. and S. E.

Altitude	Chs.	
	25.80	Dry gulch, course S. E.
	31.00	Foot of hill bears N. and S. E., ascend.
	54.00	Brow of bluff bears N. and S. 50 ft. above last cor.; descend
	64.70	Wagon trail bears N. E. and S. W., foot of bluff about 100 ft. high, enter La Plata Valley, bears N. E. and S. W.
	68.95	Wire fence bears N. and S., enter Dale's field
	69.85	Irrigating ditch, course S. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point
[fol. 66]		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
5850 ft.	80.00	This point comes in middle of cultivated field, liable to be destroyed, therefore I set corner by public road on next mile
		Land, rolling.
		Soil, sandy, 2nd and 3rd rate.
		Vegetation, grass, sage, scrub cedar and pinon.

48th Mile

S. 89° 54' E. on the tangent to the parallel.
Across cultivated field.

	16.90	W. edge of dry bed of La Plata, 75 lks. wide, course S.
	18.00	Leave cultivated ground and enter dense willow and sage brush, bears N. and S.
	28.42	Wire fence bears N. and S.; leave field.
	28.60	Road bears N. and S. from Hesperus to Fruitland
		Difference between measurements of 30 chs. by 2 sets of chainmen is nothing, the mean is
5850 ft.	30.00	N. 67 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 47th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 47.375 M. stamped in the center. Dig pits 36 x 36 x 18 ins. N., S., E., and W. of cor. 6 ft. dist. Raised a mound of earth and stone 5 ft. base 2 ft. high around the post.
		An oak tree 8 ins. dia. bears S. 80° 09' E. 226 lks. dist. marked N. M. 47.375 M., B. T. No other bearing trees. The W. gable of Dale's new house bears S. 7° 48' E. about 20 chs. dist.
		The N. gable of Dale's old house bears S. 8° 14' W. about 15 chs. dist.

Altitude Chs.

[fol. 67] A granite stone, by the roadside bears S. 1 W. 5.80 chs. dist. This stone which is 10 x 4 x 10 ins. above ground is on the old Darling line and is marked Colo. 1868 on N. and N. Mex. on S. I destroy this cor. and retrace the Darling line W. At 59.60 chs. I find an old pine post marked Colo. on N., 284 on E., N. Mex. on S. and 1868 on W. I destroy the post, ran W. retracing Darling's 285th mile. At 80.10 chs. I find a stake in ground and nearby a tree marked in pencil "Near Darling's 285th mile cor." I find no old Darling marks. Ran W. retracing Darling's 286th mile. At 79.40 chs. find a pile of stone, but no marks of any kind. Ran W. retracing Darling's 287th mile. At 80.00 chs. failed to find any trace of Darling's 287th mile cor. and failed to find any of Darling's corners W. of this point, except the stone mentioned in these notes on my 6th mile and Darling's 10th astronomical station nearly S. of our 17th mile.

48th Mile Continued

I now return to point on tangent and ran S. 89° 54' E. on the tangent to the parallel on 48th. mile.

34.00 Irrigation ditch, course S. W. leave La Plata Valley, bears N. E. and S. W.

42.00 On top of bluff about 50 ft. high, bears N. E. and S. W.

48.60 Darling's 283rd mile cor. bears S. 5.90 chs. A standstone 8 x 4 x 10 ins. above ground marked C. on N., 283 on E., N. M. on S. and 1868 on W. I destroyed this cor.

50.00 Top of ridge, 50 ft. high, bears N. E. and S. W., descend.

68.00 Dry gulch, course S.

68.70 Dry gulch, course S. W.

[fol. 68] Difference between measurements of 50 chs. by 2 sets of chainmen is 4 lks. position of middle point.

By 1st set 50.02 chs.

By 2nd set 49.98 chs., the mean of which is 50.00 chs. + 30.00 chs.

5875 ft. 80.00 N. 92 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 48th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 48 M. stamped

Altitude Chs

in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist., raised a mound of earth 5 ft. base 2 ft. high around the post.
A cedar tree 8 ins. dia. bears S. 18° E. 98 lks. dist. marked N. M. 48 M., B. T.
A cedar tree 10 ins. dia. bears S. 44½° W. 124 lks. dist. marked N. M., 48 M., B. T.
No trees on other side of line within limits.
Land, rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage. Willow brush along the La Plata.
Alt. 5875 ft.
Temp. 62°.

At the 48th mile cor. at 5h 07m P. M. 1m t., Oct. 27th, 1902 after carefully adjusting transit, though still daylight, I observe Polaris at eastern elongation. The star is plainly visible through the transit telescope. I mark a point in this line on a plug driven in the ground N. of my station.
October 27th, 1902.

Oct. 28th, 1902, at 7h A. M. I lay off the azimuth of Polaris 1° 31.1′ to the W. and mark a point in the true meridian on a plug driven in the ground N. of my station. The magnetic bearing on the meridian is N. 13° 55′ W., this gives the magnetic declination 13° 55′ E.
I now lay off from the N. to the E. for the tangent to the parallel, an angle of 90° from the meridian. In all these observations and the subsequent turning of angles the mean of 4 sights was used with the telescope reversed at each sight

[fol. 69]

49th Mile

East on the tangent to the parallel.
Ascend along N. W. slope.

16.00 Enter scattering scrub timber bears N. E. and S. W.

49.00 Darling's 282nd mile cor. bears S. 6.65 chs. dist., a standstone 14 x 4 x 12 ins. above ground in a stone mound. One cedar bearing tree S. W.: I destroyed this corner.
Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point.

Altitude	Chs.	
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is
6000 ft.	80.00	N. .76 of a link from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 49th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 49 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post. No trees within limits suitable for bearing trees.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage, scrub cedar and pinon.
		Alt. 6000 ft.
		Temp. 70°.

50th Mile

		S. 89° 59' E. on the tangent to the parallel.
		Along gentle N. slope, over rolling lands, through scattering timber.
	10.00	Top of spur slope N.; descend.
	49.10	Darling's 281st mile cor., bears S. 5.67 chs. dist. A standstone 18 x 4 x 12 ins. above ground
[fol. 70]		marked N. M. on S. and 1868, on W.
		I destroyed this corner.
	60.00	Dry gulch, course S. E.
	65.00	Dry gulch, course S.; ascend.
6000 ft.	77.00	Foot of rock cliffs, bears N. E. and S. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
	80.00	Comes on steep side of cliffs; impracticable to establish the cor. at this point.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage, scattering scrub cedar and pinon.

51st Mile

		S. 89° 59' E. on the tangent to the parallel.
		Ascend cliffs.
6275 ft.	4.00	N. 3 lks. from the tangent.

Altitude	Chs.	
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 6 ins. in the ground to bed rock for the 50th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 50.05 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		Alt. 6275 ft.
		Temp. 80°.
6275 ft.	10.00	Top of spur slope S.; descend.
	45.00	Coal cropping about 30 ft. thick about 3 chs. S. of the line.
5900 ft.	47.00	Dry gulch, course S. W.; ascend cliffs.
	49.00	After a careful search 6 chs. S. of line I failed to find Darling's 280th mile corner.
6100 ft.	59.00	Top of high rocky ridge. 200 ft. above gulch, bears N. E. and S. W.; descend.
[fol. 71]		Difference between measurements of 76 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 76.05 chs.
		By 2nd set 75.95 chs.; the mean of which is 76.00 chs.
		76.00 chs. + 4.00 chs. =
6000 ft.	80.00	N. 7 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 51st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 51 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 10 ins. dia. bears E. 38° E. 81 lks. dist. marked N. M., 51 M., B. T.
		A cedar tree 10 ins. dia. bears N. 48° W. 85 lks. dist. marked Colo., 51 M. B. T. No other trees within limits suitable for bearing trees.
		This cor. stands on brink of canon that bears N. and S.
		Land, rolling and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6000 ft.
		Temp. 60°.

52nd Mile

S. 89° 58' E. on the tangent to the parallel.
Descend.
Stadia measurement.

Altitude	Chs.	
		Angle 6° —. Rod 7.15 double = 1430 × .9891 = 1414.41 ft. + C. = 1.14 ft. = 1415.55 ft. = 21.45 chs.
	6.00	Bottom of canon about 150 ft. deep, course S.; ascend.
	21.45	Stadia point on spur, slope S.
		Thence by tape measurement.
	46.60	Darling's 279th mile cor. bears S. 5.72 chs. dist. A sandstone 8 x 10 x 6 ins. above ground marked C. on N., N. M. on S., 279 on E. Two [fol. 72] cedar bearing trees on S. side of line. I destroyed this cor.
5890 ft.	47.00	Dry bed of McDermott's Creek, course S. W.; about 20 chs. down bed of creek a soda spring.
		Difference between measurements of 58.55 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 58.56 chs.
		By 2nd set 58.54 chs.; the mean of which is 58.55 chs. + 21.43 chs. =
5975 ft.	80.00	N. 12 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 52nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 52 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on side of hill sloping N. W.
		A pinon tree 10 ins. dia. bears S. 45° 20′ E. 87 lks. dist. marked N. M., 52 M., B. T.
		A pinon tree 7 ins. dia. bears S. 21° 40′ W. 58 lks. dist. marked N. M., 52 M., B. T.
		A pinon tree 7 ins. dia. bears N. 43° W. 86 lks. dist. marked Colo., 52 M., B. T.
		No tree within limits N. E. suitable for bearing tree.
		Land, rolling and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage and scattering scrub cedar and pinon.
		Alt. 5975 ft.
		Temp. 50°.

October 28th, 1902

I examine the transit in all its parts and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

53rd Mile

Altitude	Chs.	
		S. 89° 57′ E. on the tangent to the parallel.
[fol. 73]		Ascend.
	10.60	Top of spur slope N.; descend.
	15.00	Leave timber bears N. and S.
	47.86	Darling's 278th mile cor. bears S. 6.68 chs. A cedar post marked C. on N., 278 on E., and N. M. on S. standing in line of wire fence. Pits E. and W. of post appear to have been excavated within the last 3 and 4 years. Post may not be in its original position. Post much decayed. Marks scarcely legible. I destroyed this cor.
	50.75	Dry gulch, course N.
	76.25	Road bears N. E. and S. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.; the mean of which is
5950 ft.	80.00	N. 19 lks. from the tangent.
		Set an iron pipe 3 ins. dia, 4 ft. long with flanges at the bottom 2 ft. in the ground for 53rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N. M. on S. and 53 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		Most eastern high peak of the La Plata Mts., bears N. 6° 40′ E. A conical peak covered with timber and capped with black lava rock just visible over low hills bears N. 45° 54′ W. about 2 miles dist.
		A S. W. salient of high mesa having profile of Indian features looking W., bears S. 22° 40′ E.
		Land, gently rolling.
		Soil, clay with some sand, 3rd rate.
		Vegetation, sage, scattering scrub cedar and pinon.
		Alt. 5950 ft.
		Temp. 70°.

54th Mile

[fol. 74]		
		S. 89° 57′ E. on the tangent to the parallel.
		Ascend over gently rolling ground.
	13.00	Irrigation ditch, now dry, course S. W. Enter scattering timber bears N. and S.
	20.00	About 6 chs. S. to cor. of wire fence that runs W. and a little E. of S.

Altitude	Chs.	
	49.10	A post supposed to be Darling's 277th mile cor. bears S. 6 chs. dist., not marked. One bearing tree each side of an E. and W. line. I destroyed this cor. There are subdivision closing corners E. and W. of this point, and not far from it which I leave standing.
	55.00	Leave timber, bears N. and S.
	60.00	Dry gulch, course N. W.
	79.00	Enter timber bears N. W. and S. E.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 80.04 chs.
6210 ft.	80.00	By 2nd set 79.96 chs.; the mean of which is N. 27 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 54th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N.; N. M. on S. and 54 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		A pinon tree 8 ins. dia. bears N. 57° 20′ W. 75 lks. dist. marked Colo., 54 M., B. T.
		A pinon tree 6 ins. dia. bears S. 68½° E. 65 lks. dist. marked N. M., 54 M., B. T.
		No other trees within limits suitable for bearing trees.
		Conical peak covered with timber and capped with black lava rock bears N. 60° 40′ W. about 3 miles dist.
		S. salient of high mesa profiles of Indian face looking W. bears S. 4° 10′ E.
		Land, rolling.
[fol. 75]		Soil, clay and sand, 3rd rate.
		Vegetation, sage and scattering scrub cedar and pinon.
		Alt. 6210 ft.
		Temp. 65°.

55th Mile

S. 89° 56′ E. on the tangent to the parallel. Over gently rolling land.

	18.00	Top of spur slope N. W.
	32.00	Leave timber bears N. W. and S. E.
	48.00	Darling's 276th mile cor. a post marked C. on N., 276 on E. and N. M. on S. and 1868 on W. bears S. 6.45 chs. I destroyed this cor.

Altitude	Chs.	
	52.75	Dry gulch, course N. W.
	68.65	Wagon trail bears N. E. and S. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
6250 ft.	80.00	N. 37 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 55th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 55 M., stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post. A cedar tree 12 ins. dia. bears N. 34° 50′ E. 309 lks. dist. marked Colo., 55 M., B. T.
		A pinon tree 12 ins. dia. bears S. 58° 40′ W. 204 lks. dist. marked N. M., 55 M., B. T. No other trees within limits.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, sage and scrub cedar and pinon.
		Alt. 6250 ft.
		Temp. 68°.

[tol. 76] 56th Mile

		S. 89° 55′ E. on the tangent to the parallel. Over gently rolling land.
	34.00	Enter timber bears N. and S.
6250 ft.	41.50	Foot of bad land hills bears N. E. and S. W.; ascend.
	49.50	Darling's 275th mile cor. bears S. 6 chs. A cedar tree 12 ins. dia. marked Colo. on N., 275 on E., N. M. on S., 1868 on W. sides. I destroy these marks.
	77.00	Top of rock bluff bears N. W. and S. E. about 100 ft. high.
		Difference between measurements of 80 chs. by 2 sets of chainmen, is 6 lks. position of middle point
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
6125 ft.	80.00	N. 19 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 56th mile cor. A brass cap on the top of the pipe has raised

Altitude	Chs.	
		letters Colo. on N., N. M. on S. and 56 M. stamped in the center. Raised mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. A cedar tree 10 ins. dia. bears N. 63° 30′ E. 66 lks. dist. marked Colo., 56 M., B. T. A pinon tree 10 ins. dia. bears S. 65° E. 57 lks. dist. marked N. M., 56 M., B. T. No other trees within limits suitable for bearing trees. Soil, sand and clay, 3rd rate. Vegetation, sage, scrub cedar and pinon. Land, rolling. Alt. 6425 ft. Temp. 60°. October 29th, 1902.

I examine the instrument, compare the steel tapes with the standard and find all correct.

57th Mile

[fol. 77]		S. 89° 55′ E. on the tangent to the parallel. Along S. rocky slope.
6425 ft.	10.00	Top of rock ledge bears S. W. and N. W.
	12.00	Coyote Spring about 15 chs. S.
	49.25	Darling's 274th mile cor. bears S. 6.08 chs. A post marked Colo. on N., 274 on E., N. M. on S. and 1868 on W. I destroyed this cor. Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point By 1st set 80.06 chs. By 2nd set 79.94 chs.; the mean of which is
6325 ft.	80.00	N. 62 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 57th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 57 M. stamped in the center. Dug pits 36 x 36 x 48 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post. A pinon tree 8 ins. dia. bears N. 54° 40′ 55 lks. dist. marked Colo., 57 M., B. T. A pinon tree 10 ins. dia. bears S. 17° 20′ E. 60 lks. dist. marked N. M., 57 M., B. T. A pinon tree 12 ins. dia. bears N. 12° W. 82 lks. dist. marked Colo., 57 M., B. T.

Altitude	Chs.	
		A pinon tree 6 ins. dia. bears S. 43° W. 22 lks. dist. marked N. M., 57 M., B. T.
		Land, rolling and broken.
		Soil, sand, clay and alkali, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6323 ft.
		Temp. 62°.

58th Mile

		S. 89° 54′ E. on the tangent to the parallel. Ascend through timber.
	9.80	On spur slope N. W.
	48.70	Darling's 273rd mile cor. bears S. 5.55 chs. A post 4 ins. square marked Colo. on N., 273 on E., N.M. on S. and no marks on the W. I destroyed this cor.
[fol. 78]		Difference between measurements of 30 chs. by 2 sets of chainmen is 10 lks. position of middle point
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is
	80.00	Comes on rough hillside, impracticable to establish cor. at this point.
		Land mountainous.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, sage, scrub cedar and pinon.

59th Mile

		S. 89° 53′ E. on the tangent to the parallel. Ascend.
6500 ft.	8.00	N. 78 lks. from the tangent:
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 58th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 58.1 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A pinon tree 10 ins. dia., bears N. 8° 40′ E. 76 lks. dist. marked Colo., 58.1 M., B. T.
		A cedar tree 8 ins. dia. bears 56½° E. 22 lks dist. marked N. M., 58.1 M., B. T.
		A cedar tree 10 ins. dia. bears N. 65½° E. 20 lks. dist. marked Colo., 58.1 M., B. T.

Altitude	Chs.	
		No tree within limits S. W. suitable for bearing tree.
		Alt. 6500 ft.
		Temp. 70°.
		This cor. stands on sharp slope N.
	49.00	Darling's 272nd mile cor. bears S. 5.25 chs. A sandstone marked C. on N., 272 on E., N.M. on S. I destroy this cor. and marks on three bearing trees.
		Difference between measurements of 72 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 72.01 chs.
[fol. 79]		By 2nd set 71.99 chs.; the mean of which is 72.00 chs. + 8.00 =
6500 ft.	80.00	N. 92 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 59th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 59 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. No trees within limits suitable for bearing trees.
		Land, rolling and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6500 ft.
		Temp. 62°.

October 30th, 1902.

I examine the transit and find it in perfect adjustment, compare the tapes and find them of correct length.

60th Mile

		S. 89° 53' E. on the tangent to the parallel.
	29.00	Leave timber bears N. and S.
	34.00	Dry gulch, course S. about 100 ft. below last cor.
	49.76	Darling's 271st mile cor. bears S. 5 chs. A sandstone 8 x 12 x 16 ins. above ground marked 271 on E. Other marks defaced by time. I destroyed this cor.
	57.00	Dry gulch, course S. W.; ascend.
	60.00	Cave Spring in Spencer Canon, about 60.00 chs. S.

Altitude	Chs.	
	65.00	Enter timber bears N. W. and S. E.
	76.00	Top of rocky spur, slope N. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
6800 ft.	80.09	N. 110 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges
[fol. 80]		at the bottom 1 ft. in the ground to bed rock for 60th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S., and 60 M. stamped in the center. Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		A pinon tree 7 ins. dia. bears S. 37° 50′ E. 52 lks. dist. marked N. M., 60 M., B. T.
		A pinon tree 7 ins. dia. bears N. 19° W. 30 lks. dist. marked Colo., 60 M., B. T.
		Land, rolling.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, sage, cedar and pinon.
		Alt. 6800 ft.
		Temp. 50°.

61st Mile

		S. 89° 52′ E. on the tangent to the parallel.
	49.58	Darling's 270th mile cor. bears S. 5 chs. A sandstone 5 x 12 x 16 ins. above ground, marked 1868 on W. Other marks indistinct. I destroyed this cor.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point,
		By 1st set 80.06 chs.,
		By 2nd set 79.94 chs.; the mean of which is
6925 ft.	80.00	N. 129 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 61st mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 61 M. stamped in the center. Raised a mound of stone 5 ft base 2 ft. high around the post. Pits impracticable. This cor. stands on cliff about 40 ft. high, bears N. W. and S. E.
		A cedar tree 12 ins. dia. bears S. 13° 10′ E. 56 lks. dist. marked N. M., 61 M., B. T.

Altitude Chs.

[fol. 81] A cross on a sand-stone slab 3 x 6 x 7 ft. bears N. 26° 40′ W. 25 lks. dist., marked Cor

Colo.
B C
61 M.

Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6925 ft.
Temp. 60°.

62nd Mile

S. 89° 52′ E. on the tangent to the parallel.
Ascend over rocks and through timber.

7000 ft. 10.00 Top of ridge bears N. W. and S. E.; descend.

25.12 Top of cliffs bears N. W. and S. E.; descend over rough broken, rocky country.

49.[illegible] After careful search I failed to find Darling's 269th mile cor.

Difference between measurements of 80 chs. by 2 sets of chainmen in 14 lks. position of middle point

By 1st set 80.07 chs.

By 2nd set 79.93 chs.; the mean of which is

6075 ft. 80.00 N. 150 lks. from the tangent,

Set temporary corner. (See page 424.)

Land, rolling and broken.
Soil, rocky and sandy, 3rd rate.
Vegetation, sage, scrub cedar and pinon.
Alt. 6075 ft.
Temp. 70°.

October 31st, 1902.

At 4h 37m A. M. l. m. t. Nov. 1st, 1902 (having carefully adjusted the transit yesterday afternoon) I observed Polaris at western elongation and mark a point in this line on a plug driven in the ground N. of my station. At 7h A. M. I lay off the azimuth of Polaris 1° 31.1′ to the east and mark a point in the true meridian thus

[fol. 82] found on a plug driven in the ground N of my station. The magnetic bearing of the meridian is N. 13° 50′ W. This gives the magnetic variation 13° 50′ E. I now lay off 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of 4

63rd Mile

Altitude	Chs.	
		sights was used with the instrument reversed at each sight.
		East on the tangent to the parallel.
	2.00	Leave timber at foot of hills, enter little valley, bears N. W. and S. E.
	7.50	Wagon trail bears N. W. and S. E.
	11.21	Stadia measurement, Angle 6° +, Rod 9.78 ft. double = 1956 ft. × .9891 = 1934.68 ft. + C. = 1.14 ft. = 1935.82 ft. = 29.33 chs. + 11.21 chs. = 40.54 chs.
	12.00	Dry bed of stream, 10 lks. wide, course S. E. Bottom of Cox's Canon.
	20.00	Dry gulch, course S.
	30.00	Enter timber, leave valley bears N. and S.; ascend.
	40.54	On E. Wall of Cox's canon about 300 ft. high bears N. and S.; ascend over broken rock. Tape measurement,
	49.00	After careful search failed to find Darling's 268th mile cor. Stadia measurement Angle 6° +, Rod 9.95 double = 1990 × .9891 = 1969.31 ft. + C. = 1.14 ft. = 1969.45 ft. = 29.84 chs. = 50.32 chs. = 80.16 chs. — 0.16 chs. =
6575 ft.	80.00	N. .76 of a lk. from the tangent. Set temporary cor. Land, rolling and broken. Soil, rocky and sandy, 3rd rate. Vegetation, grass, sage, cottonwood and scrub cedar and pinon. Alt. 6575 ft. Temp. 50°.

64th Mile

[fol. 83]

		S. 89° 59' E. on the tangent to the parallel. Ascend over rocks and through brush.
	0.52	On rock cliff bears N. W. and S. E.
	11.00	Rocky gulch near head course N. W.
	49.00	After careful search I failed to find any trace of Darling's 267th mile cor.
	72.00	Top of hill bears N. and S.
6775 ft.	76.30	Brow of river bluff bears N. W. and S. E.; altitude 6,775 ft. Descend towards Rio Las Animas. Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point.

Altitude	Chs.	
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
6650 ft.	80.00	N. 3 lks. from the tangent.
		Set temporary cor.
		Land, Broken and hilly.
		Soil, sandy and gravelly, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6650 ft.
		Temp. 50°.

65th Mile

		S. 89° 59′ E. on the tangent to the parallel.
		Descend steep rocky bluff.
	5.00	Dry ravine, course N. E.
	12.00	On spur slope N. E.
6000 ft.	42.00	Foot of bluff bears N. and S.
	51.80	Darling's 266th mile cor. bears S. 8 chs., a granite stone 6 x 6 x 12 ins. above ground marked C. on N., 266 on E., N. M. on S. and 1868 on W. I destroyed this cor.
6000 ft.	64.00	Brow of bluff bears N. and S.; descend.
		Difference between measurements of 65.84 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 65.89 chs.
		By 2nd set 65.79 chs.; the mean of which is
5850 ft.	65.84	Point from which astronomical station No. 2 bears S. 10.80 chs.
[fol. 84]		The latitude of this station by astronomical observations on the nights of Sept. 27, 28th, 29th and 30th, 1902, was found to be 36° 59′ 50.50″. The point on the 37th degree of North Latitude would fall 14.55 chs. N. of the station. Our falling is 10.80 chs. + 6 lks. offset = 10.86 chs. N. of the station and 3.69 chs. S. of the true parallel, as indicated by astronomical observations. As this is inside of the limit allowed by the Hon. Commissioner, I erect temporary astronomical monument North 6 lks. from the tangent at this point and continue this line. (See page 426.)
	68.00	Foot of bluff bears N. and S. about 100 ft. high.
	70.00	Irrigating ditch, course S. E.
	70.33	Stadia measurement to top of bluff across river, Angle 11° +, Rod 8.57 double = 1714 ft. × .9636 = 1651.61 f. + C. = 1.12 ft. = 1652.73 ft. = 25.04 chs. + 70.33 chs. = 95.37 chs.—80.00 chs. = 15.37 on 66th mile.

Altitude	Chs.	
	72.50	Wagon road from Durango to Farmington bears N. and S.
	73.00	Fence bears N. and S. Enter D. Doane's door-yard.
	73.25	Doane's house about 25 lks. N.
	75.00	Log stable 10 lks. S.
		As I find that the 80 chs. point will come in the river, therefore at
5775	79.00	N. 7 lks. from the tangent.
		Set temporary cor.
	80.00	Comes in Rio Las Animas, clear water, swift current, 2 ft. deep, course S. E.
		Land, rough and broken.
		Soil, sandy and stony, 3rd rate.
		Vegetation, grass, sage, willow, cottonwood and scrub cedar and pinon.
		Alt. 5775 ft.
		Temp. 40°. November 1st, 1902.

[fol. 85]

I examine the adjustments of the transit, compare the steel tape with the standard and find everything correct.

66th Mile

S. 89° 58′ E. on the tangent to the parallel.

1.00	E. bank of Rio Las Animas, course S. E.; ascend through dense willow brush.
4.00	Foot of rock cliffs bears N. W. and S. E.; ascend.
15.37	Stadia point on top of cliffs about 400 ft. high bears N. W. and S. E. Enter scrub cedar and pinon.
	Stadia measurement.
	Angle 0°, Rod 7.31 single = 731 ft. + C. = 1.15 = 732.15 ft. = 11.09 chs. + 15.37 chs. = 26.36 chs.
26.36	Stadia point on wall of canon bears N. E. and S. W.
	Stadia measurement.
	Angle 1° +, Rod 10.80 double = 2160 ft. × .9997 = 2159.35 ft. + C. = 1.15 ft. = 2160.50 ft. = 32.73 chs. + 26.36 chs. = 59.09 chs.
42.00	Bottom of dry canon about 300 ft. deep, course S. W.
59.09	Stadia point on E. wall of canon bears N. E. and S. W.; ascend by tape measurement.
70.66	Stadia measurement.

Altitude	Chs	
		Angle 5°, Rod 11.16 single = 1116 ft. × .9924 = 1107.52 ft. + C. = 1.15 ft. = 1108.67 ft. = 16.80 chs. + 70.66 chs. = 87.46 chs.—80 chs. = 7.46 chs. on 67th mile.
	79.00	Bottom of rocky gulch, course N. W.; ascend.
	80.00	Comes in rocky gulch, impracticable to establish cor. at this point.
		Land, very rough, broken and rocky.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scrub cedar and pinon.

67th Mile

[fol. 86]		S. 89° 57′ on the tangent to the parallel.
	7.46	Stadia point. Thence by tape measurement.
6650 ft.	10.00	N. 13 lks. from the tangent.
		Set temporary corner, marked 60.125 M.
		Altitude 6650 ft.
		Temp. 48°.
	11.00	Top of spur slope N.
	21.90	Top of spur slope N.; descend.
	27.00	Bottom of rocky canon about 200 ft. deep, course N. W.; ascend.
		Difference between measurements of .70 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 70.04 chs.
		By 2nd set 69.96 chs.; the mean of which is 70.00 chs. + 10.00 chs. =
7000 ft.	80.00	N. 19 lks. from the tangent.
		Set temporary corner.
		Land, rough and broken, very rocky.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 7,000 ft.
		Temp. 40°.
		November 2nd, no line run.
		Closed for the day, November 3rd, 1902.

I carefully adjust the transit in all its parts, compare the steel tapes with the standard and find them of correct length.

68th Mile

S. 89° 57′ E. on the tangent to the parallel, over broken rocky country.

Altitude	Chs.	
	40.00	Old trail bears N. E. and S. W.
	52.00	Top of rocky ridge bears N. E. and S. W.; descend.
	60.00	Darling's 263rd mile cor. bears S. 7.10 chs. A sandstone 4 x 12 x 20 ins. above ground marked C. on N., 263 on E. and N. M. on S. I destroyed this cor.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point.
[fol. 87]		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
6910 ft.	80.00	N. 27 lks. from the tangent.
		Set temporary cor.
		Land, rolling and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6910 ft.
		Temp. 60°.

69th Mile

S. 89° 56′ E. on the tangent to the parallel.

	45.00	Dry ravine, course S.
	58.00	After careful search I failed to find Darling's 262nd mile cor.
	68.00	Dry gulch, course S.
	78.50	Bottom of dry ravine, course SW.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.; the mean of which is
6950 ft.	80.00	N. 37 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 69th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 69 M. stamped in the center.
		Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist.
		Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A pinon tree 12 ins. dia. bears N. 10° 10′ E. 177 lks. dist. marked Colo. 69 M. B. T.
		A yellow pine tree 28 ins. dia. bears S. 11° 30′ W. 160 lks. dist. marked N. M. 69 M. B. T.
		No other trees within limits suitable for bearing trees

Altitude Chs.

Land, rolling and broken.
Soil, sand and clay, 3rd rate.
Vegetation, scrub cedar and pinon, scattering yellow pine, and spruce and sage brush.
[fol. 88] Alt. 6950 ft.
Temp. 50°.

70th Mile

S. 89° 55′ E. on the tangent to the parallel.
Ascend through timber and brush.
45.00 Top of ridge bears N. and S.; descend.
51.00 Bottom of broad ravine, course SE.
56.55 Darling's 261st mile cor. bears S. 6.00 chs. dist. This is a resfored corner. New cedar post properly marked. Darling's old decayed post lying beside it. May not be in original position. I destroyed this cor.
57.00 Flat spur slope S.
64.00 Bottom of dry ravine, course S.; ascend.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point.
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is
80.00 Falls on rough W. slope. Impracticable to establish cor. at this point.
Land, rolling and broken.
Soil, sand and clay, 3rd rate.
Vegetation, yellow pine, spruce, cedar, pinon and sage brush.

November 4th, 1902.

I examine the adjustments of the trainsit, compare the steel tapes with the standard and find all correct.

71st Mile

S. 89° 55′ E. on the tangent to the parallel.
Ascend.
7025 ft. 14.00 N. 51 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 70th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 70 175 M. stamped in the center. Raised a mound of

Altitude	Chs.	
[fol. 89]		stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 10 ins. dia. bears N. 71° E. 89 lks. dist. marked Colo., 70.175 M., B. T.
		A pinon tree 6 ins. dia. bears S. 31° 40′ E. 45 lks. dist. marked N. M., 70.175 M., B. T.
		A cedar tree 10 ins. dia. bears S. 54° 40′ W. 44 lks. dist. marked N. M., 70.175 M., B. T.
		A pinon tree 7 ins. dia. bears N. 66° W. 34 lks. dist. marked Colo., 70.175 M., B. T.
		Alt. 7,025 ft.
		Temp. 48°.
		Stadia measurement,
		Angle 5° +, Rod 7.75 double = 1,550 ft. × .9924 = 1,538.22 ft. + C = 1.14 ft. = 1,539.30 ft. = 23.32 chs. + 14.00 chs. =
	37.32	Top of ridge bears N. and S. Descend by tape measurement.
	58.00	Failed to find Darling's 260th mile cor.
		Difference between measurements of 42.68 chs. by 2 sets of chainmen is nothing, the mean is 42.68 + 37.32 chs. =
7000 ft.	80.00	N. 62 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 71st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and [illegible] stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A pinon tree 8 ins. dia. bears N. 35° 45 lks. dist. marked Colo., 71 M., B. T.
		A pinon tree 12 ins. dia. bears S. 10° W. 180 lks. dist. marked N. M., 71 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass sage, scrub cedar and pinon.
		Alt. 7,000 ft.
		Tempt. 62°

[fol. 90]

72nd Mile

		S. 89° 54′ E. on the tangent to the parallel.
	1.00	Bottom of draw, drains N. E.; ascend.
7000 ft.	51.00	Top of ridge bears N. E. and S. W.; descend.
	57.00	Darling's 259th mile cor. bears S. 6.15 chs.

Altitude	Chs.	
		A rock in place 6 x 6 x 4 ft. marked 259 on E., other marks illegible.
		I destroyed the remaining marks.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
6725 ft.	80.00	N. 76 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 72nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 72 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on gravelly spur, slope N. E.
		A cedar tree 12 ins. dia. bears N. 30° E. 37 lks. dist. marked Colo., 72 M., B. T.
		A pinon tree 10 ins. dia. bears S. 18° E. 66 lks. dist. marked N. M., 72 M., B. T.
		A cedar tree 12 ins. dia. bears S. 45° W. 13 lks. dist. marked N. M., 72 M., B. T.
		A cedar tree 12 ins. dia. bears N. 60° W. 60 lks. dist. marked Colo., 72 M., B. T.
		Land, rolling.
		Soil, sandy and gravelly, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6,725 ft.
		Temp. 26°.

November 5th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

[fol. 91]

73rd Mile

S. 89° 53′ E. on the tanget to the parallel. Descend.

24.45 Bottom of dry ravine course S. E., 100 ft. deep; ascend.

57.25 Darling's 258th mile cor. bears S. 5.88 chs. A sandstone 3 x 18 x 22 ins. above ground, in stone mound, marked C. on N., N. M. on S. I destroyed this cor.

65.00 Top of spur slope S. about 300 ft. above last cor.

70.00 Dry gulch, course S.; ascend.

Altitude	Chs.	
		Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is
6750 ft.	80.00	N. .92 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 73rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 73 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 10 ins. dia. bears N. 24½° E. 31 lks. dist. marked Colo. 73 M., B. T.
		A cedar tree 12 ins. dia. bears S. 39° 10′ W. 13 lks. dist. marked N. M., 73 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, rolling.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6,750 ft.
		Temp. 45°.

74th Mile

		S. 89° 53′ E. on the tanget to the parallel.
	12.50	Top of ridge bears N. W. and S. E. about 100 ft. above cor.; descend.
[fol. 92]	50.00	Bottom of dry ravine, course S. E. 150 ft. deep; ascend.
	57.10	Darling's 257th mile cor. bears S. 6 chs. A sandstone 10 x 10 x 13 ins. above ground marked C. on N., 257 on E., N. M. on S., and 1868 on W. I destroyed this corner.
		Difference between measurements of 64.62 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 64.64 chs.
		By 2nd set 64.60 chs.; the mean of which is
6830 ft.	64.62	On spur slope S., stadia measurement.
		Angle 4° —, Rod 12.68 single = 1,268 ft. × .9951 = 1,261.79 ft. + C. = 1.15 ft. = 1,262.94 ft. = 19.13 chs. + 64.62 chs. = 83.75. — 3.75 chs. = 80.00 chs.
	78.00	Dry ravine course S.; ascend.
6810 ft.	80.00	N. 110 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 74th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 74 M. stamped

Altitude	Chs	
		in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft, base 2 ft. high around the post.
		A pinon tree 10 ins. dia. bears N. 38° E. 50 lks. dist. marked Colo., 74 M., B. T.
		A pinon tree 12 ins. dia. bears S. 42° 20′ E. 55 lks. dist. marked N. M. 74 M., B. T.
		A cedar tree 10 ins. dia. bears S. 40° 20′ W. 110 lks. dist. marked N. M. 74 M., B. T.
		No tree N. W. within limits suitable for bearing tree.
		Land, rolling and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scrub cedar and pinion.
		Alt. 6,810 ft.
		Temp. 65°.

75th Mile

[fol. 93]		S. 89° 52′ E. on the tangent to the parallel. Ascend.
	10.00	Top of spur slope S. about 100 ft. high; descend.
	44.00	Dry gulch course S.; ascend.
	54.50	Top of spur slope S. about 100 ft. high; descend.
	61.00	Darling's 256th mile cor. bears S. 6.00 chs. A sandstone 4 x 10 x 12 ins. marked 256, other marks indistinct., I destroyed this corner.
	62.00	Deserted cabin and corrals about 12 chs. S.
	67.00	Bottom of dry canon, course S. W., called Pump Canon.
6700 ft.	75.00	Dry gulch, course N. W.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs. the mean of which is
6750 ft.	80.00	N. 129 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 75th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 75 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinion tree 24 ins. dia. bears N. 12° 25′ E. 140 lks. dist. marked Colo. 75 M., B. T.
		A pinon tree 12 ins. dia. bears N. 15° W. 175 lks. dist. marked Colo., 75 M., B. T.
		No trees on other side of line within limits.
		Land, rolling and broken.

Altitude	Chs.	
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage, cedar and pinon.
		Alt. 6,750 ft.
		Temp. 65°.

76th Mile

		S. 89° 52′ E. on the tangent to the parallel.
	10.00	Circular corral about 4chs. S. Foot of hill bears N. W. and S. E.; ascend.
6900 ft.	36.00	Top of spur about 150 ft. above last cor., slope S., thence along steep rocky S. slope.
[fol. 94]		Difference between measurements of 52.24 chs. by ~~a set~~ of chainmen is 6 lks. position of middle point.
		By 1st set 52.27 chs.
		By 2nd set 52.21 chs.; the mean of which is
6900 ft.	52.24	On rocky spur slope S.
		Stadia measurement.
		Angle 5° +. Rod 8.23 double = 1646 × .9924 = 1633.49 + C. = 1.14 ft. = 1,634.63 ft. = 24.76 chs. + 52.24 chs. = 77.00 chs.
	70.00	Bottom of dry canon 150 ft. deep, course S. W. Trail bears N. E. and S. W.
	77.00	Stadia point on E. wall of canon bears N. E. and S. W.
		Tape measurement.
6940 ft.	80.00	N. 150 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 76th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 76 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinion tree 8 ins. dia. bears N. 23½° E. 50 lks. dist. marked Colo., 76 M., B. T.
		A pinion tree 10 ins. dia. bears S. 44° 40′ E. 64 lks. dist. marked N. M., 76 M., B. T.
		A pinion tree 6 ins. dia. bears S. 57° 25′ W. 24 lks. dist. marked N. M., 76 M., B. T.
		A cedar tree 12 ins. dia. bears N. 58° W. 35 lks. dist. marked Colo., 76 M., B. T.
		Land, rough and broken.
		Soil, rocky and sandy; 3rd rate.
		Vegetation, cedar and pinion.
		Alt. 6,940 ft.
		Temp. 34°.

November 6th, 1902.

I examine the adjustments of the transit and compare the steel tapes with the standard; find all correct and in adjustment.

[fol. 95]

77th Mile

Altitude	Chs.	
		S. 89° 51′ E. on the tangent to the parallel. Ascend.
7000 ft.	18.00	Top of high ridge bears N. W. and S. E.; descend.
	50.00	Bottom of deep dry ravine, course S. E. 200 ft. deep; ascend along steep brushy N. slope.
	60.00	Top of spur slope N. about 100 ft. above bottom of ravine.
		Difference between measurement of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point.
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
6800 ft.	80.00	Falls in deep rocky dry ravine, course N. W. Impracticable to establish the cor. at this point Land, rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, scrub, cedar and pinon.

78th Mile

		S. 89° 50′ E. on the tangent to the parallel. Ascend steep bluff.
6910 ft.	10.00	N. 175 lks. from the tangent.
		Set an iron pipe 3 ins. dia: 4 ft. long with flanges at the bottom 2 ft. in the ground for 77th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 77.125 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 14 ins. dia. bears N. 19° E. 15 lks. dist. marked Colo. 77.125 M., B. T.
		A cedar tree 8 ins. dia. bears S. 77° 45′ E. 45 lks. dist. marked N. M., 77.125 M., B. T.
		A cedar tree 10 ins. dia. bears S. 13½° W. 42 lks. dist. marked N. M., 77.125 M., B. T.
		A cedar tree 14 ins. dia. bears N. 30° 40′ W. 35 lks. dist. marked Colo., 77.125 M., B. T.
7100 ft.	20.00	Top of spur slope N.; descend along N. slope.

Altitude	Chs.	
	40.00	Top of spur slope N.; descend.
[fol. 96]		Difference between measurements of 70 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 70.03 chs.
		By 2nd set 69.97 chs.; the mean of which is 70.00 + 10.00 chs. =
7000 ft.	80.00	N. 196 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 78th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 78 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 12 ins. dia. bears N. 15° E. 43 lks. dist. marked Colo., 78 M., B. T.
		A pinon tree 10 ins. dia. bears S. 75° W. 42 lks. dist. marked N. M., 78 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 7000 ft.
		Temp. 65°.

79th Mile

		S. 89° 50′ E. on the tangent to the parallel; descend along N. slope.
	59.50	A standstone 14 x 12 x 8 ins. above ground bears S. 7.00 chs. dist. marked C. C., Col. on N., R. 7 on E., T. 32 N., N. M. on S., and R. 8 on W. faces. I leave this cor. as I find it. After careful search both E. and W. of this stone, I failed to find any cor. bearing the Darling marks.
	62.00	Top of spur slope N.; descend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point.
[fol. 97]		By 1st set 80.02 chs.
		By 2nd set 79.98 chs., the mean of which is
6825 ft.	80.00	N. 221 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 79th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. an 79 M.

Altitude	Chs.	
		stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high, around the post. Pits impracticable.
		A cedar tree 6 ins. dia. bears S. 35° E. 19 lks. dist. marked N. M., 79 M., B. T.
		A pinon tree 10 ins. dia. bears N. 10° W. 16 lks. dist. marked Cob., 79 M., B. T.
		No other trees within limits suitable for bearing trees.
		This cor. stands on E. side of low spur slope N.
		Land, rolling.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, scrub cedar and pinion.
		Alt. 6825 ft.
		Temp. 55°.
		November 7th. 1902

80th Mile

		S. 89° 49′ E. on the tangent to the parallel. Descend.
	1.00	Dry [illegible]ch course N.; ascend.
	4.00	Top of spur slope N.; descend.
	24.30	Top of river bluff, bears N. and S.; descend.
	28.00	Leave timber bears N. and S., enter sage brush.
6160 ft.	37.00	Foot of bluff about 100 ft. high, bears N. and S., thence across sage flat.
6150 ft.	50.00	Top 2nd bluff bears N. W. and S. E. According to Darling's field notes his 251st mile cor. should stand on the brow of this bluff. After careful search I failed to find any trace of it.
		Descend.
6075 ft.	52.00	Foot of rocky bluff about 75 ft. high, bears N. and S.
		Enter meadow on river bottom.
6075 ft.	61.50	W. bank of Las Pinos River, course S. about 2 chs. then W. to foot of bluff, then S.
[fol. 98]		Stadia measurement across stream.
	62.85	E. bank of river, 3 ft. high, course S. about 5 chs. then W. about parallel to opposite bank, clear water about 2 ft. deep; enter willow and cottonwood brush.
	65.00	Leave brush, enter meadow; Rodriguez's field bears N. and S.
	68.80	Wire fence bears N. and S. Rodriguez's house about 4 chs. S. W.
	69.25	Center of road bears N. and S. from Ignacio to the San Juan River settlements

Altitude	Chs.	
		La Boca station on the D. & R. G. W., R. R. about ½ mile N., La Boca P. O. Mexican settlement, about ½ dozen adobe houses about 10 chs. S.; ascend.
	69.75	Irrigation ditch, course S.
	72.00	Top of bluff about 75 ft. high bears N. and S.
	73.80	Wagon road bears N. E. and S. W.
		Difference between measurements of 78.65 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 78.67 chs.
		By 2nd set 78.63 chs.; the mean of which is 78.65 chs. + 1.35 chs. (Distance across the river) =
6130 ft.	80.00	N. 247 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 80th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 80 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		E. edge of rocky hill bears N. 39° E. about 1 mile dist.
		Center of round peak bears S. 84° 56′ E. about 2 miles distant.
		A conical peak covered with timber bears S. 9° E. about 1 mile distant.
	[fol. 99]	N. edge of partly timbered gray peak bears N. 79° 50′ W. about 2 miles distant.
		This cor. stands on first bench above the river at head of little draw that drains S.
		Land, broken, valley and mesa.
		Soil, rocky, clay and sand, 3rd rate.
		Vegetation, grass, sage, willow and cottonwood.
		Alt. 6130 ft.
		Temp. 70°.
		November 8th, 1902.

Nov. 9th, at 1h 05m A. M. l. m. t. (after having carefully adjusted the transit last evening) I observe Polaris at western elongation, and mark a point in the line on a plug driven in the ground about 10 chs. N. of my station. At 7h A. M. Nov. 9th, 1902, I lay off the azimuth of Polaris 1° 30.9′ to the E. and mark a point in the true meridian thus found on a plug driven in the ground 10 chs. N. of my station.

Altitude	Chs.	
		The magnetic bearing of the meridian is N. 13° 50′ W.
		This gives magnetic variation 13° 50′ E.
		I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.
		In all these observations and the subsequent turning of angles the mean of 4 sights was used, with the telescope reversed at each sight.
		I compare the steel tapes with the standard and find them of correct length.

81st Mile

		East on the tangent to the parallel.
	4.00	Top of spur slope S.; descend.
	11.00	Dry ravine course S. W.; ascend gradually.
	50.00	After a careful search I failed to find any trace of Darling's 250th mile cor.
6160 ft.	73.00	Foot of hills bears N. E. and S. W.; leave valley, enter timber; ascend.
[fol. 100]		Difference between measurement of 80 chs. by 2 sets of chainmen is 2 lks.; position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
6210 ft.	80.00	N. .76 of a link from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 81st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 81 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 12 ins. dia. bears N. 50° E. 84 lks. dist. marked Colo., 81 M., B. T.
		A cedar tree 10 ins. dia. bears S. 48° E. 67 lks. dist. marked N. M. 81 M., B. T.
		A cedar tree 12 ins. dia. bears S. 31½° W. 45 lks. dist. marked N. M., 81 M., B. T.
		A cedar tree 10 ins. dia. bears N. 59° 20′ W. 98 lks. dist. marked Colo., 81 M., B. T.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage, scrub cedar and pinon.
		Alt. 6210 ft.
		Temp. 35°.

82nd Mile

Altitude	Chs.	
		S. 89° 30' E. on the tangent to the parallel. Ascend through scrub cedar and pinon timber.
	16.00	Top of spur slope N. Thence along N. slope.
6873 ft.	60.00	Top of ridge bears N. E. and S. W.; descend along S. slope.
	70.00	Bottom of ravine near head, course S.; ascend. Difference between measurements of 80 chs. by 2 sets of chainmen is 6 lks. position of middle point.
[fol. 101]		By 1st set 80.63 chs.
6340 ft.	80.00	By 2nd set 79.97 chs.; the mean of which is N. 12 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 82nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 82 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 11 ins. dia. bears N. 27° 45' E. 29 lks. dist. marked Colo., 82 M., B. T.
		A cedar tree 8 ins. dia. bears S. 21½° E. 49 lks. dist. marked N. M., 82 M., B. T.
		A pinon tree 10 ins. dia. bears S. 36½° W. 35 lks. dist. marked N. M., 82 M., B. T.
		A cedar tree 11 ins. dia. bears N. 46° 10' W. 12 lks. dist. marked Colo., 82 M., B. T.
		This cor. stands on brow of bluff sloping S. W. Land, rolling.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, scrub cedar and pinon.
		Alt. 6846 ft.
		Temp. 76°

83rd Mile

		S. 89° 30' E. on the tangent to the parallel.
6846 ft.	12.66	Top of ridge bears N. W. and S. E.
	21.00	Top of ridge bears N. W. and S. E.
		Stadia measurement.
		Angle 3° —'. Rod 11.54 double = 2308 ft. × .9973 = 2301.77 ft. + C. = 1.15 ft. = 2302.92 ft. = 34.89 chs. + 21.00 chs. = 55.89 chs.
	56.00	Darling's 248th mile cor. bears S. 8.15 chs. dist. A decayed cedar post marked C. on N., 248 on E., and N. M. on S. I destroyed this cor.
6550 ft.	52.66	Bottom of ravine course S. E.; ascend.
6650 ft.	58.89	Stadia point on cliffs about 100 ft. high, bear N. W. and S. E.

Altitude	Chs.	
		Tape measurement.
6650 ft.	61.00	On wall of canon, bears N. E. and S. W.; descend.
[fol. 102]		Difference between measurements of 45.11 chs. by 2 sets of chainmen is 1 lks. position of middle point.
		By 1st set 45.13 chs.
		By 2nd set 45.09 chs.; the mean of which is 45.11 chs. + 34.89 chs.
6575 ft.	80.00	N. 7 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long, with flanges at the bottom 2 ft. in the ground for 83rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 83 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		A cedar tree 10 ins. dia. bears N. 5° W. 43 lks. dist. marked Colo., 83 M., B. T.
		A cedar tree 8 ins. dia. bears S. 58½° E. 55 lks. dist. marked N. M., 83 M., B. T.
		A pinon tree 6 ins. dia. bears S. 30° 25' W. 61 lks. dist. marked N. M., 83 M., B. T.
		A cedar tree 7 ins. dia. bears N. 61½° W. 60 lks. dist. marked Colo., 83 M., B. T.
		This cor. stands on flat in thick timber.
		Land, rolling and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, sage, scrub cedar and pinon.
		Alt. 6575 ft.
		Temp. 60

84th Mile

		S. 89° 58' E. on the tangent to the parallel.
6575 ft.	7.08	On top of cliff, wall bears N. E. and S. W.; descend.
		Stadia measurement.
		Angle 5° —, Rod 8.85 double = 1770 ft. × .9924 = 1756.55 ft. + C. = 1.14 ft. = 1757.69 ft. = 26.63 chs. + 7.08 chs. = 33.71 chs.
	12.00	Foot of cliffs about 150 ft. high, bear N. E. and S. W.
	18.00	Dry gluch course N. E., ascend along S. slope.
	33.71	Stadia point.
		Stadia measurement.
[fol. 103]		Angle 6° +, Rod 9.23 double = 1846 ft. × .9891 = 1825.88 ft. + C. = 1.14 ft. = 1827.02 ft. = 27.68 chs. × 33.71 chs. = 61.39 chs.

Altitude	Chs.	
	46.00	Top of spur slope N.
	46.70	Darling's 247th mile cor. bears S. 8.53 chs. A sandstone 18 x 10 x 5 ins. above ground marked C. on N., 247 on E., N. M. on S., 1868 on W. has been reset in a mound with pits and bearing trees. I destroyed this cor.
	61.39	Stadia point, thence by tape measurement.
6480 ft.	73.23	On top of bluff, wall of rocks bears S. and N. about 3 chs. then N. W.; descend.
		Stadia measurement.
		Angle 29° —, Rod 4.20 sings = 420 ft. × .7650 = 321.30 ft. + C. × 1.00 = 322.30 = 4.88 chs. + 73.23 chs. = 78.11 chs.
	78.11	Stadia point thence by tape measurement.
6340 ft	80.00	N. 12 lks. from the tangent.
		Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for 84th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 84 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 8 ins. dia. bears N. 45½ E. 43 lks. dist. marked Colo., 84 M., B. T.
		A cedar 12 ins. dia. bears S. 33° E. 68 lks. dist. marked N. M., 84 M., B. T.
		A cedar tree 6 ins. dia. bears N. 71° 10' W. 43 lks. dist. marked Colo., 84 M., B. T.
		No tree S. W. within limits suitable for bearing tree.
		This cor. stands near foot of cliffs about 150 ft high that bear N. and S.
		Land, rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, sage, scrub cedar and pinon.
[fol. 104]		Alt. 6340 ft.
		Temp. 50°.

November 9th, 1902

I examine the levels and collimation of the tran-it, compare the steel tapes with the standard and find all correct and in adjustment.

85th Mile

S. 89° 57' E. on the tangent to the parallel. Descend.

	6.00	Foot of bad land slope, 50 ft. below cor., bears N. and S.

Altitude	Chs.	
		Leave timber, enter sage brush valley, bears N. and S.
	14.00	Dry gluch, course N. E.
	47.00	Darling's 246th mile cor. bears S. 8.76 chs. An old decayed post re-set with a new one beside it, marked C. on N., 246 on E., N. M. on S., 1868 on W. I destroyed this cor.
	58.00	Dry gluch from N. W. course E., thence down general course of same.
		Difference between measurements of 80 chs. by 2 sets of chainmen is nothing, the mean is
61.50 ft.	80.00	N. 19 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 85th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 85 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
		A conical peak covered with timber bears N. 32° 45′ E.
		A conical point on Conejos Range bears N. 86° 40′ E.
		A N. salient of S. bluff bears S. 49° 50′ E.
		A N. salient of high ridge we have passed over bears N. 75° 35′ W.
[fol. 165]		Land, gently rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage and scattering timber
		Alt. 6150 ft.
		Temp 58°.

86th Mile

		S. 89° 57′, E. on the tangent to the parallel. Down the general course of dry arroyo.
	20.00	Leave arroyo, course N. E.
	47.00	Darling's 245th mile cor. bears S. 8.60 chs. An old post with new one beside it, marked C. on N., 245 on E., N. M. on S.; I destroyed this cor.
	59.50	Same arroyo in rocky canon, course S. E.
	65.00	Same arroyo in canon, course N. E.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
61.27 ft.	80.00	N. 27 lks from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the botton 2 ft. in the ground for 86th mile

Altitude	Chs.	
		cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 86 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		The section house at Vallejo station on D. & R. G. W. R. R. bears N. 0° 50′ W. about 1 mile dist.
		Conical timbered peak bears N. 23° 38′ E.
		N. salient of S. bluff bears S. 23° 40′ E.
		Tree on conical peak S. of San Juan River bears S. 48° 24′ E.
		Land, gently rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass and sage.
[fol. 106]		Alt. 6127 ft.
		Temp. 70°.

87th Mile

		S. 89° 56′ E. on the tangent to the parallel.
	7.50	Dry arroyo, course N.
	47.05	Darling's 244th mile cor. bears S. 8.55 chs. New post and small sandstone. Post marked C. on N., 244 on E., N. M. on S.; I destroyed this cor.
	52.00	Road bears N. W. and S. E.
		Difference between measurements of 80 chs. by 2 sets of chainmen is nothing; the mean is
6119 ft.	80.00	N. 37 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 87th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 87 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		Cone shaped timbered peak bears N. 13° 40′ E.
		Tree on top of cone shaped peak S. of San Juan River bears S. 38° 40′ E.
		E. end of high bluff bears S. 7° 30′ W.
		N. salient of high ridge that the line passed over bears N. 81° 30′ W.
		Land, gently rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage and greasewood.
		Alt. 6140 ft.
		Temp. 75°.

88th Mile

Altitude	Chs.	
		S. 89° 55′ E. on the tangent to the parallel.
		Over rolling lands.
	5.00	Dry arroyo, course S. E.; small pond or reservoir
[fol. 107]		about ½ mile S. E.
	42.00	Top of spur slope S.; descend.
	47.38	Darling's 243rd mile cor. bears S. 8.00 chs. A sandstone top broken off marked 243; I destroy this cor.
	52.00	Dry bed of creek 100 lks. wide, course S. W.; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point
		By 1st set 80.02 chs.
		By 2nd set, 79.98 chs.; the mean of which is
6200 ft.	80.00	N. 49 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 88th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 88 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of cor. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		Cone-shaped timbered peak bears N. 2° 08′ E.
		E. end of bluff bears S. 48° 10′ W.
		N. salient of high ridge back on line bears N. 83° 09′ W.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage and greasewood.
		Alt. 6200 ft.
		Temp. 71°.

89th Mile

		S. 89° 55′ E. on the tangent to the parallel.
		Ascend.
	16.00	Enter scattering timber bears N. and S.
	25.00	On mesa bears N. E. and S. W.
	31.56	Wagon road bears N. W. and S. E.
	47.00	After a careful search I failed to find Darling's 242nd mile cor.
	64.00	Wagon road bears N. W. and S. E.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 2 lks. position of middle point
[fol. 108]		by 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
6230 ft.	80.00	N. 62 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft in the ground for 89th mile cor.

Altitude	Chs.	
		A brass cap on the top of the pipe has raised letters Colo. on the N., N. M. on S. and 89 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 3 ft. base 2 ft. high around the post.
		A pinon tree 10 ins. dia. bears N. 77° 35' E 98 lks. dist. marked Colo., 89 M., B. T.
		A cedar tree 10 ins. dia. bears S. 18° E 88 lks. dist. marked N. M., 89 M., B. T.
		A cedar tree 12 ins. dia. bears N. 51° W 206 lks. dist. marked Colo., 89 M., B. T.
		No tree S. W. within limits suitable for bearing tree.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage, scattering scrub cedar and pinon.
		Aff. 6230 ft.
		Temp. 68°.

90th Mile

		S. 89° 54' E. on the tangent to the parallel.
	8.50	Brow of bluff bears N. E. and S. W.; descend
	27.50	Bottom of ravine about 150 ft. deep, course S. W.: ascend.
6180 ft.	35.00	Top of bluff bears N. E. and S. W. D. & R. G. W. R. R. track about 10 chs. N. Failed to find Darling's 241st mile cor.
6180 ft.	45.47	Top of river bluff, bears N. E. and S. W.
		Stadia measurement.
		Angle 4°. —. Rod 8.51 double = 1702 ft. × .9951 = 1693.66 ft. + C. = 1.15 ft. = 1694.81 ft. = 25.68 chs. + 45.47 chs. = 71.15 chs.
	53.30	W. edge of water in San Juan River, about
[fol. 109]		100 ft. below top of bluff, course S. W.
	55.00	E. bank of river, course S. W.; clear water, 3 ft. deep; enter willow and cottonwood brush. Abeytia's house about 10 chs. S. W.
	66.00	Enter cultivated field bears N. E. and S. W.; property of J. J. Abeytia.
	71.15	Stadia point.
		Tape measurement.
	72.20	Irrigation ditch, course S. W.
		Difference between measurements of 54.32 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 54.33 chs.

Altitude	Chs.	
		By 2nd set 54.31 chs.; the mean of which is 54.32 chs. = 25.68 chs.
6100 ft.	80.00	N. 76 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 90th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on E. and 90 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		This cor. stands in cultivated field.
		A cottonwood tree 6 ins. dia. bears N. 68° 40' E. 435 lks. dist. marked Colo., 90 M., B. T.
		A cottonwood tree 18 ins. dia. bears N. 74° 50' W. 301 lks. dist. marked Colo., 90 M., B. T.
		No trees S. of line along here.
		Rosa P. O., a Mexican settlement about 60 chs. S. W.
		Land, mesa and river bottom.
		Soil, sand and clay, 2nd and 3rd rate.
		Vegetation, grass, sage, greasewood and willow, cottonwood and pinon and cedar on bluff.
		Alt. 6100 ft.
		Temp. 60°.

November 10th, 1902.

[fol. 110]

91st Mile

I examine the transit and find it in adjustment, compare the steel tapes with standard and find them of correct length.

		S. 89° 53' E. on the tangent to the parallel.
	18.25	Irrigating ditch, course S. W. Leave irrigated land; ascend over rolling sagebrush valley, bears N. E. and S. W.
	22.00	Wagon road bears N. E. and S. W.
	32.75	Wagon road bears N. E. and S. W.
	42.80	Wagon road bears N. E. and S. W., from Rosa to Arboles.
	47.00	After careful search I failed to find Darling's 240th mile cor.
6200 ft.	65.00	Foot of hills, leave valley of the San Juan bears N. E. and S. W. Enter timber; ascend.
		Difference between measurements of 72.45 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 72.46 chs.

Altitude	Chs.	
		By 2nd set 72.44 chs., the mean of which is 72.45 chs.
	72.45	Top of spur, slope S.
		Stadia measurement.
		Angle 14° +, rod 11.40 single = 1140 ft. × .9415 = 1073.31 ft. + C. = 1.11 ft. = 1074.42 ft. = 16.28 chs. + 72.45 chs. = 88.73 chs. — 80.00 chs. = 8.73 chs. on 92nd mile.
	80.00	Falls on steep slide bank. Impracticable to establish corner at this point.
		Land, valley and rough hills.
		Soil, sand and clay, 2nd and 3rd rate.
		Vegetation, grass, sage, scrub cedar and pinon.

92nd Mile

		S. 89° 53' E. on the tangent to the parallel.
6610 ft.	8.73	N. 94 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 91st mile cor. A brass cap on the top of the
[fol. 111]		pipe has raised letters Colo. on N., N. M. on S. and 91.109 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 13 ins. dia. bears N. 43° 80' E. 31 lks. dist. marked Colo. 91.109 M., B. T.
		A pinon tree 5 ins. dia. bears S. 6° 05' E. 31 lks. dist. marked N. M., 91.109 M., B. T.
		No other trees within limits suitable for bearing trees.
		Arboles R. R. station and mouth of Piedras River about a mile a little W. of N.
		This cor. stands on sharp spur sloping W.
		Steep slide bank on S.
		Alt. 6610 ft.
		Temp. 70°.
		Stadia measurement.
		Angle 13° +, Rod 9.53 single = 953 ft. × .9494 = 904.78 ft. + C. = 1.12 ft. = 905.90 ft. = 13.72 chs. + 8.73 chs. = 22.45 chs.
6180 ft.	22.45	On sharp spur slope S.; descend.
		Stadia measurement.
		Angle 3° —, Rod 12.30 double = 2460 ft. × .9988 = 1318.42 ft. + C. = 1.15 ft. = 1319.57 ft. = 19.99 chs. + 22.45 chs. = 42.44 chs.
6700 ft.	28.00	Bottom of dry ravine, course N. E.
	42.44	On spur slope N.; descend.

Altitude	Chs.	
		Stadia measurement.
		Angle 3° —. Rod 12.30 double = 2460 ft. × .9973 + 2453.36 ft. + C. = 1.15 ft. = 2454.51 ft. = 37.19 chs. + 42.44 chs. = 79.63 chs.
[illegible]	00	Bottom of dry ravine, 200 ft. deep, course N. W.; ascend.
[illegible]	9.63	Stadia point, thence by tape measurement
6800 ft.	0.00	N. 110 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 92nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 92 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
[fol. 112]		Pits impracticable.
		This cor. stands on spur sloping N.
		A pinon trees 6 ins. dia. bears N. 63½° E. 41 lks. dist. marked Colo., 92 M., B. T.
		A pinon tree 7 ins. dia. bears S. 18° 45' E. 39 lks. dist. marked N. M., 92 M., B. T.
		A cedar tree 9 ins. dia. bears S. 59° W. 36 lks. dist. marked N. M., 92 M., B. T.
		A cedar trees 7 ins. dia. bears N. 25¼° W. 41 lks. dist. marked Colo., 92 M., B. T.
		Land, very rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, cedar and pinon.
		Alt. 6800 ft.
		Temp. 45°.

November 14th, 1902.

November 12th, rained all day, no line run.
November 13th, I examine the transit and find it in adjustment, compare the tapes with the standard and find them of correct length.

93rd Mile.

S. 89° 52' E. on the tangent to the parallel.
Stadia measurement.
Angle 12° —. Rod 13.00 double = 2600 ft. × .9568 = 2487.68 ft. + C. = 1.12 ft. = 2488.80 ft. = 37.70 chs.

37.70 Stadia point, thence by tape measurement; ascend.

Altitude	Chs.	
	44.00	Top of high spur slope N., thence along steep brushy N. slope.
		Difference between measurements of 42.30 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 42.32 chs.
		By 2nd set 42.28 chs.; the mean of which is 42.30 chs. + 37.70 chs. =
	80.00	Falls on steep N. slope in dense oak underbrush, impracticable to establish the cor. at this point.
[fol. 113]		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, cedar, pinon and oak brush.

94th Mile

		S. 89° 52′ E. on the tangent to the parallel. Ascent along steep N. slope.
7500 ft.	8.00	N. 131 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 93rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 93.1 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		This cor. stands on spur sloping N.
		A pinon tree 5 ins. dia. bears N. 65° W. 99 lks. dist. marked Colo., 93.1 M., B. T.
		A sandstone in place 6 x 6 x 5 ft., a cross (X) on the face of which bears S. 45° W. 110 lks. dist. mkd. N. M., 93.1 M., B. O.
		No other trees or objects within limits suitable for bearing trees.
		This cor. stands on steep N. slope about 150 lks. down from the top of the bluff.
		Alt. 7500 ft.
		Temp. 48°.
		Thence along N. slope of bluff about 1400 ft. above the San Juan River.
	40.06	Top of spur slope N.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point.
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
7500 ft.	80.00	N. 150 lks. from the tangent.

Altitude	Chs.	
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 94th mile cor. A brass cap on the top of the pipe has raised
		[fol. 114] letters Colo. on N., N. M. on S. and 94 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No bearing trees.
		Land, rolling and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, scrub cedar, pinon and oak brush.
		Alt. 7500 ft.
		Temp. 40°.

95th Mile

		S. 89° 51′ E. on the tangent to the parallel.
		Along steep N. slope of bluff.
7500 ft.	32.00	Top of spur slope N. E.; descend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks position of middle point.
		By 1st set 80.07 chs.
		By 2nd set 79.93 chs.; the mean of which is
7125 ft.	80.00	N. 172 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the gound for 95th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 95 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A yellow pine 14 ins. dia. bears N. 70° E. 110 lks. dist. marked Colo., 95 M. B. T.
		A yellow pine tree 14 ins. dia. bears S. 30° W. 85 lks. dist. marked N. M., 95 M., B. T.
		A yellow pine tree 10 ins. dia. bears N. 6° W. 82 lks. dist. marked Colo., 95 M., B. T.
		No tree S. W., within limit suitable for bearing tree.
		Land, rolling and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, cedar, pinon, yellow pine and oak brush.
		[fol. 115] Alt. 7125 ft.
		Temp. 40°.

November 13th, 1902.

I examine the adjustments of the transit, compare the steel tapes with the standard and find all correct.

96th Mile

Altitude	Chs.	
		S. 89° 50′ E. on the tangent to the parallel.
	18.81	On bluff bears N. E. and S. W.; descend.
		Stadia measurement.
		Angle 6° —, Rod 8.69 double = 1738 ft. × .9891 = 1719.06 ft. + C. = 1.14 ft. = 1720.20 ft. = 26.06 chs. + 18.81 chs. = 44.87 chs.
	28.00	Bottom of ravine, course N. E.; ascend.
	44.87	Stadia point, top of spur slope N.
		Tape measurement,
		Difference between measurements of 35.13 chs. by 2 sets of chainmen is 4 lks. Position of middle point.
		By 1st set 35.15 chs.
		By 2nd set 35.11 chs.; the mean of which is 35.13 chs. + 44.87 chs. =
	80.00	Falls on steep brushy hillside. Impracticable to establish the cor. at this point.
		Land, rough and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, cedar, pinon, yellow pine and oak brush.

97th Mile

		S. 89° 50′ E. on the tangent to the parallel.
6800 ft.	12.00	N. 200 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 96th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 96.15 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
[fol. 116]		A cedar tree 10 ins. dia. bears N. 12° 45′ E. 62 lks. dist. marked Colo., 96.15 M., B. T.
		A cedar tree 12 ins. dia. bears S. 72° E. 69 lks. dist. marked N. M., 96.15 M., B. T.
		A pinon tree 5 ins. dia. bears S. 87° 40′ W. 92 lks. dist. marked N. M., 96.15 M., B. T.
		A cedar tree 8 ins. dia. bears N. 31° W. 46 lks. dist. marked Colo., 96.15 M., B. T.
		This cor. stands on rocky spur slope N.
		Alt. 6800 ft.
		Temp. 54°.

Altitude	Chs.	
		Descending along N. slope over spurs.
	75.00	Dry gulch, course N. E.
		Difference between measurements of 68 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 68.04 chs.
		By 2nd set 67.96 chs.: the mean of which is 68.00 chs. + 12.00 chs. =
6810 ft.	80.00	N. 221 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 97th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 97 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 8 ins. dia. bears N. 37° E. 71 lks. dist. marked Colo., 97 M., B. T.
		A yellow pine tree 13 ins. dia. bears S. 30½° E. 151 lks. dist. marked N. M., 97 M., B. T.
		A cedar tree 8 ins. dia. bears S. 31° 20′ W. 45 lks. dist. marked N. M., 97 M., B. T.
		A pinon tree 6 ins. dia. bears N. 13° W. 74 lks. dist. marked Colo., 97 M., B. T.
		Land, rolling and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, cedar, pinon, yellow pine, oak brush.
		Alt. 6810 ft.
		Temp. 50°.

[fol. 117]

98th Mile

		S. 89° 49′ E. on the tangent to the paralled. Ascend.
	18.50	Top of spur slope N. Thence descending along N. slope over spur.
6200 ft.	72.00	Foot of hills enter San Juan Valley, bears N. W. and S. E.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.: the mean of which is
6200 ft.	80.00	N. 247 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 98th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 98 M. stamped in the center. Dug pits 36 × 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. and raised a mound of earth

Altitude Chs.

5 ft. base 2 ft. high around the post.
A cottonwood tree 24 ins. dia. bears N. 58° 33' E. 86 lks. dist. marked Colo., 98 M., B. T.
A cottonwood tree 14 ins. dia. bears S. 32¼° E. 140 lks. dist. marked N. M., 98 M., B. T.
A cottonwood tree 14 ins. dia. bears S. 43° 20' W. 115 lks. dist. marked N. M., 98 M., B. T.
A cottonwood tree 15 ins. dia. bears N. 24½° W. 78 lks. dist. marked Colo., 98 M., B. T.
Land, rolling and valley.
Soil, clay and sandy loam, 2nd and 3rd rate.
Vegetation, grass, cedar, pinon, yellow pine and cottonwood timber; cottonwood, willow, sage and oak brush.
Alt. 6200 ft.
Temp. 40°.

November 14th, 1902.

Nov. 15th, at 3h 42m A. M. l. m. t., (having previously examined the transit and found it in perfect adjustment), I observe Polaris at western
[fol. 118] elongation and mark a point in the line on a plug driven in the ground N. of my station.
At 7h A. M. I lay off the azimuth of Polaris 1° 31.1' to the E. and mark a point in the true meridian thus found on a plug driven in the ground N. of my station.
The magnetic bearing of the meridian is N. 13° 50' W. This gives the magnetic variation 13° 50' E.
I now lay off an angle of 90° from the meridian to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of 4 sights was used, with the telescope reversed at each sight.

29th Mile

East on the tangent to the parallel.

2.64 W. bank of the San Juan River bears N. and S., bank 8 ft. high.

3.64 Across river to sand bar; E. edge of water bears N. E. and S. E., clear water about 2½ ft. deep, swift current.

9.27 E. bank of river bears N. W. and S. W. 6 ft. high; outer dense willow and cottonwood brush.

Altitude	Chs.	
	14.00	Leave brush; enter cultivated field, bears N. W. and S. E.
	16.20	Wire fence bears N. and S. Enter cornfield.
	21.85	Leave field; enter willow brush, bears N. E. and S. W.
	27.00	Leave brush and enter cultivated field bears N. E. and S. W.
	33.00	Leave field; enter brush bears N. and S.
	39.60	Leave brush; enter cultivated field bears N. and S.
	46.00	Mexican adobe building bears 6.00 chs. S.
	52.00	Leave cultivated field and enter timber and brush, bears N. and S.
	60.00	Enter same field bears N. W. and S. E.
	65.00	Mexican adobe house about 3 chs. N. Stable about 2 chs. S.
[fol. 119]		Difference between measurements of 66.22 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 66.23 chs.
		By 2nd set 66.21 chs.; the mean of which is course of river S. W.
	66.22	W. bank of San Juan River bears N. E. and S. W. Stadia measurement across river.
		Angle 0°, Rod 7.47 double = 1434 ft. + 0.
		1.15 ft. = 1435.15 ft. = 21.74 chs. + 66.22 chs. = 87.96 chs. — 80.00 chs. = 7.96 chs. on the 100th mile.
	80.00	Falls in the river, impracticable to establish the cor. at this point.
		Land, valley, nearly level.
		Soil, sandy loam, 2nd rate.
		Vegetation, cottonwood and willow.

100th Mile

		S. 89° 59' E. on the tangent to the parallel.
	7.50	E. edge of water in river, course N. W.
	7.96	Stadia point in road bears N. W. and S. E. Tape measurement.
6200 ft.	8.26	N. I link from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 100th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 100 M. stamped in the center. Raised a mound of stone 5 ft. base 2ft. high around the post.
		Pits impracticable.

Altitude	Chs	
		A cottonwood tree 24 ins. dia. bears N. 30¼° E. 125 lks. dist. marked Colo., 99.103 M., B. T.
		A cottonwood tree 24 ins. dia. bears N. 34° W. 162 lks. dist. marked Colo. 99.103 M., B. T.
		No tree on other side except those across the river.
		Alt. 6200 ft.
		Temp. 50°
		[fol 120] The section house at Carracas station on the D. & R. G. W. R. R. about 12.00 chs. N. W.
		Thence along river bottom through willow brush and cottonwood timber.
	31.00	Old log stable on line, Mexican adobe house about 10 chs. SE.
		Difference between measurements of 29.35 chs. by 2 sets of chainmen is nothing; the mean is 29.35 + 8.26 chs. =
	37.61	Stadia measurement from this point.
		Angle 0° Rod 7.086 ft. double = 1412 ft. + C. = 1.15 ft. = 1413.15 ft. = 21.41 chs. + 37.61 chs. = 59.02 chs.
	38.00	Right bank of San Juan River, course S. W.
	39.40	Left bank on sand bar from N. E. to S. W.
	59.00	Edge of water in river course N. W.; thence across bend.
	59.02	On left bank of river 8 ft. high bears N. E. and S. W.
		Tape measurement.
	~~60.00~~	~~Road bears N. E. and S. W.~~
	70.29	River bank course N.
		Stadia measurement across river.
		Angle 0°, Rod 4 ft. single = 400 ft. + C. = 1.15 ft. = 401.15 ft. = 6.08 chs. + 70.29 chs. = 76.37 chs.
	74.00	On E. bank of river, water flows N. Enter timber and brush.
	76.37	Stadia point.
		Tape measurement.
6230 ft.	80.00	N. 3 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 100th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S, and 100 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist.
		Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A cottonwood tree 20 ins. dia. bears N. 41½° E. 12 lks. dist. marked Colo., 100 M., B. T.
		[fol 121] A cottonwood tree 6 ins. dia. bears S. 55° 20' E. 86 lks. dist. marked N. M., 100 M., B. T.

Altitude	Chs.	
		A cottonwood tree 10 ins. dia. bears S. 46° W. 61 lks. dist. marked N. M., 100 M., B. T. A cottonwood tree 13 ins. dia. bears N. 43° 40' W. 141 lks. dist. marked Colo., 100 M., B. T.
		About 10 chs. S. to river.
		Land, river bottom.
		Soil, sandy loam, 2nd rate.
		Vegetation, cottonwood, willow and sage brush.
		Alt, 6230 ft.
		Temp. 65°.

101st Mile

		S. 89° 59' E. on the tangent to the parallel.
	12.80	W. bank of river bears N. E. and S. W. Water flows S. W.
		Stadia measurement across river.
		Angle 0°., Rod 1.70 single = 170 ft. + C. = 1.15 ft. = 171.15 ft. = 2.59 chs. + 12.80 chs. = 15.39 chs.
	15.39	E. bank of river bears N. E. and S. W. Foot of hill bears N. E. and S. W. Leave San Juan River valley; ascend.
		Tape measurement.
6330 ft.	30.12	Top of spur slope N. 100 ft. above river; descend.
6230 ft.	35.50	Bottom of dry ravine, 100 ft. deep, course from S. E. to N.; ascend.
6380 ft.	61.00	Top of rocky spur slope S.; descend.
		Difference between measurements of 64.61 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 64.63 chs.
		By 2nd set 64.59 chs.; the mean of which is 64.61 chs. + 15.39 chs. =
6350 ft.	80.00	Falls in rocky gulch, course S. impracticable to establish the cor. at this point.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
[fol. 122]		Vegetation, sage and oak brush, cedar and pinion timber.

November 15th, 1902.

102nd Mile

		S. 89° 58' E. on the tangent to the parallel. Ascend
6510 ft.	16.00	N. 8 lks. from the tangent.

Altitude	Chs.	
		Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for 101st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 101.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. around the post. Pits impracticable.
		A cedar tree 8 ins. dia. bears N. 62° E. 65 lks. dist. marked Colo., 101.2 M., B. T.
		A cedar tree 14 ins. dia. bears S. 22½° E. 43 lks. dist. marked N. M., 101.2 M., B. T.
		A cedar tree 12 ins. dia. bears S. 71° 40′ W. 89 lks. dist. marked N. M., 101.2 M., B. T.
		A pinon tree 7 ins. dia bears N. 48° 20′ W. 57 lks. dist. marked Colo., 101.2 M., B. T.
		This cor. stands on spur sloping S.
		Alt. 6510 ft.
		Temp. 46°.
	25.00	Dry ravine course S. W.
6800 ft.	64.00	Top of high ridge bears N. and S. Altitude 6800 ft.
		Descend.
		Difference between measurements of 64.00 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 64.03 chs.
		By 2nd set 63.97 chs.; the mean of which is 64.00 chs. + 16.00 chs. =
6790 ft.	80.00	N. 12 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 102nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 102 M.
[fol. 123]		stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A yellow pine 14 ins. dia bears N. 15° E. 9 lks. dist. marked Colo., 102 M., B. T.
		A yellow pine 14 ins. dia., bears S. 29° 20′ E. 34 lks. dist. marked N. M., 102 M., B. T.
		A yellow pine 14 ins. dia. bears S. 44° 40′ W. 70 lks. dist. marked N. M., 102 M., B. T.
		A yellow pine tree 18 ins. dia. bears N. 52° 20′ W. 47 lks. Dist. marked Colo., 102 M., B. T.
		This cor. stands on spur slope N.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, cedar and yellow pine, and oak brush.
		Alt. 6790 ft.
		Temp. 58°.

103rd Mile

Altitude	Chs.	
		S. 89° 57′ E. on the tangent to the parallel. Descend.
	1.50	Dry gulch, course N.; ascend.
6790 ft.	7.00	Top of spur, slope N.; descend.
	55.00	Bottom of dry ravine, 200 ft. deep, course N.; ascend along steep N. slope.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 14 lks. position of middle point.
		By 1st set 80.07 chs.
		By 2nd set 79.93 chs.; the mean of which is
6750 ft.	80.00	N. 19 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at bottom 2 ft. in the ground for 103rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 103 M. stamped in the center. Raised a mound of stone 5 ft. base and 2 ft. high around the post.
		Pits impracticable.
[fol. 124]		A yellow pine tree 24 ins. dia. bears N. 86° W. 84 lks. dist. marked Colo., 103 M., B. T. No other trees within limits.
		This cor. stands on steep N. slope in oak brush, dense.
		Land, rough and broken.
		Soil, sand and clay, 3rd rate.
		Alt. 6750 ft.
		Temp. 45°.

104th Mile

		S. 89° 57′ E. on the tangent to the parallel. Ascend along steep N. slope.
6780 ft.	31.30	Top of sharp spur slope N. Descend along N. slope.
	60.00	Bottom of dry ravine about 200 ft. deep, course N. W.; ascend.
	63.00	Bottom of rocky ravine, course S.
	68.00	Top of spur slope N.
	78.00	Dry ravine near head, course N.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point.
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
7100 ft.	80.00	N. 27 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 104th mile

Altitude	Chs.	
		cor. A brass cap on the top of the pipe has raised letters Colo. on N.; N. M. on S. and 104 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A spruce tree 10 ins. dia. bears N. 27° 20' E. 118 lks. dist. marked Colo., 104 M., B. T.
		A spruce tree 19 ins. dia. bears S. 21° E. 13 lks. dist. marked N. M., 104 M., B. T.
		A spruce tree 24 ins. dia. bears S. 55° 40' W. 30 lks. dist. marked N. M., 104 M., B. T.
		A pinon tree 5 ins. dia. bears N. 42° W. 106 lks. dist marked Colo. 104 M., B. T.
[fol. 125]		Land, rolling and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, sage and oak brush, cedar, pinon, yellow pine, and spruce timber.
		Alt. 7100 ft.
		Temp. 46°.

November 16th, 1902.

I examine the adjustment of the transit and compare the steel tapes with the standard, find all correct and in adjustment.

105th Mile

		S. 89° 56' E. on the tangent to the parallel. Ascend.
7150 ft.	5.91	Top of high spur slope S.
		Stadia measurement.
		Angle 5° —, Rod 9.18 double = 1836 ft. × 1822.05 ft. + C. = 1.14 ft. = 1823.19 = 27.62 chs. + 5.91 chs. = 33.53 chs.
	18.00	Dry ravine about 150 ft. deep, course S. W.: ascend.
	33.53	Stadia point.
		Tape measurement.
7200 ft.	35.00	Top of ridge bears N. and S. Altitude 7200 ft.: descend.
		Difference between measurements of 46.47 chs. by 2 sets of chainmen is 8 lks. position of middle point
		By 1st set 46.51 chs.
		By 2nd set 46.43 chs.; the mean of which is 46.47 chs. + 33.35 chs. =

Altitude	Chs.	
	80.00	Falls in deep canon, 150 ft. below top of ridge, impracticable to establish the cor. at this point. Land, rough and broken. Soil, rocky, sand and clay, 3rd rate. Vegetation, oak brush, cedar and pinon, yellow pine and spruce timber.

106th Mile

		S. 89° 55' E. on the tangent to the parallel. [fol. 126] Descend.
	4.00	Bottom of ravine, course N.; ascend.
7400 ft.	24.00	N. 41 lks. from the tangent, Set an iron pipe 3 ins. dia; 4 ft. long with flanges at the bottom 2 ft. in the ground for 105th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 105.3 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. A yellow pine tree 10 ins. dia. bears N. 44° E. 76 lks. dist. marked Colo., 105.3 M., B. T. A yellow pine tree 12 ins. dia. bears S. 20° E. 100 lks. dist. marked N. M., 105.3 M., B. T. A yellow pine tree 24 ins. dia. bears S. 38° 40' W. 89 lks. dist., marked N. M., 105.3 M., B. T. A yellow pine tree 10 ins. dia. bears N. 5° W. 170 lks. dist. marked Colo., 105.3 M., B. T. This cor stands on E. slope of high ridge, near top, bears N. and S. Alt. 7400 ft. Temp. 55°. Descend.
	38.00	Bottom of dry ravine 300 ft. deep, course N.; ascend.
		Difference between measurements of 37.36 chs. by 2 sets of chainmen is 2 lks. position of middle point. By 1st set 37.37 chs.; By 2nd set 37.35 chs.; the mean of which is 37.36 chs. + 24.00 chs. =
7400 ft.	61.36	On high ridge bears N. and S. A trap dyke about 1 ch. N. Stadia measurement. Angle 6 —, Rod 13.00 double = 2600 ft. × .9891 = 2571.66 ft. + C. = 1.14 ft. = 1572.80 ft. = 38.98 chs. + 61.36 chs. = 100.34 chs. — 80.00 chs. = 20.34 chs. on 107th mile.

Altitude	Chs.	
	80.00	Falls in rocky canon, 300 ft. deep, course S. E. Impracticable to establish the cor at this point.
[fol. 127]		Land, rough and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, oak brush, cedar and pinon, yellow pine and spruce timber.

107th Mile.

S. 89° 55′ E. on the tangent to the parallel.
Ascend along S. slope.

7290 ft.	20.34	Stadia point, thence by
		Tape measurement.
7290 ft.	27.00	N. 53 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 106th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 106,338 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pinon tree 6 ins. dia. bears S. 16° E. 33 lks. dist. marked N. M., 106,338 M., B. T.
		A pinon tree 7 ins. dia. bears S. 86° 40′ W. 27 lks. dist. marked N. M., 106,338 M., B. T.
		A (X) cross on sandstone wall 6 ft. high bears N. 14° 20′ E. 27 lks. dist. marked Colo., 106,338 M., B. O.
		No other bearing objects within limits.
		Alt. 7290 ft.
		Temp. 52°.
		This cor. stands on rocky spur slope S. Top of rocky butte about 2 chs. N. E.; descend.
		Difference between measurements of 36.55 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 36.56 chs.
		By 2nd set 36.54 chs., the mean of which is 36.55 chs. + 27.00 chs. = 63.55 chs.
6810 ft.	63.55	On top of river bluff bears N. and S.; descend.
		Stadia measurement.
		Angle 18° [illegible] Rod 7.12 doubt = 1424 ft. × 90.45 = 1288.01 ft. × C = 1.08 ft. = 1289.09
[fol. 128]		ft. = 19.53 chs. + 63.55 chs. = 83.08 chs.
		80 chs. = 3.08 chs. on 108th mile.
	79.90	Foot of bluff about 400 ft. high, W. edge of Navajo River course N., 70 lks. wide.

Altitude	Chs.	
	80.00	Falls in river, impracticable to establish the cor. at this point.
		Land, rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.

November 17th, 1902.

I examine the adjustments of the transit and compare the steel tapes with the standard, and find all correct and in adjustment.

108th Mile

		S. 89° 54' E. on the tangent to the parallel.
	0.60	E. bank of Navajo River bears S. and N. E. Enter aspen and willow brush.
6410 ft.	2.00	N. 62 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 107th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 107.025 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		An aspen tree 6 ins. dia. bears N. 50° 50' E. 47 lks. dist. marked Colo., 107.025 M., B. T.
		A spruce tree 18 ins. dia. bears S. 27° 05' E. 232 lks. dist. marked N. M., 107.025 M., B. T.
		An aspen tree 6 ins. dia. bears N. 73° 10' W. 43 lks. dist. marked Colo., 107.025 M., B. T.
		No tree S. W. within limits suitable for bearing tree.
		A pine post 10 ins. square 2½ ft. above ground firmly set, marks somewhat indistinct, U. R. on N. A. 57 N. on E., and N. M. on S. bears S. 41 05' W. 9.13 chs. dist. Supposed to be old S. E. cor. Southern Ute Reservation. This is the first cor. or mark of any kind I have been able to find [fol. 129] indicating the boundary line since leaving the 88th mile of our line, the 243rd mile cor. of the Darling line.
		Alt. 6410 ft.
		Temp. 30
	3.00	D. & R. G. W. R. R. tracks bears N. and S.
	5.00	Foot of bluff bears N. and S.; leave river bottom, ascend steep

Altitude	Chs.	
6900 ft.	19.00	Top of bluff bears N. and S. Altitude 6900 ft.
	57.00	Dry bed or ravine course S.; ascend.
		Difference between measurements of 78 chs. by 2 sets of chainmen is 14 lks. position of middle point
		By 1st set 78.07 chs.
		By 2nd set 77.93 chs., the mean of which is 78 chs. + 2.00 chs.
7110 ft.	80.00	N. 76 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 108th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 108 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable
		A yellow pine tree 10 ins. dia. bears N. 41½ E. 107 lks. dist. marked Colo., 108 M., B. T.
		A yellow pine tree 26 ins. dia. bears S. 17° 45' E. 109 lks. dist. marked N. M., 108 M., B. T.
		A yellow pine tree 24 ins. dia. bears S. 72° 45' W. 229 lks. dist. marked N. M. 108 M., B. T.
		A yellow pine tree 24 ins. dia. bears N. 16° 45' W. 148 lks. dist. marked Colo., 108 M., B. T.
		Land, very rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.
		Alt. 7110 ft.
		Temp. 48°.

[fol. 130] 109th Mile

		S. 89° 53' E. on the tangent to the parallel. Ascend.
	22.40	Top of spur slope N. W. about 50 ft. above cor. Descend.
	34.50	Bottom of dry ravine, course N. W. about 50 ft. below cor. Ascend.
	73.00	Top of ridge bears N. and S. about 600 ft. above last cor.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks. position of middle point
		By 1st set 20.05 chs.
		By 2nd set 79.95 chs., the mean of which is
7710 ft.	80.00	N. 92 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 109th mile

Altitude	Chs.	
		cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 109 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 6 ins. dia. bears N. 36° E. 50 lks. dist. marked Colo., 109 M., B. T.
		A pinon tree 12 ins. dia. bears S. 56° W. 58 lks. dist. marked N. M., 109 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.
		Alt. 7710 ft.
		Temp. 60°.
		This cor. stands on steep rocky S. slope near head of gulch, course S. E.

110th Mile

		S. 89° 53' E. on the tangent to the parallel. Descend.
	15.00	Bottom of deep dry ravine, course S. W. about
[fol. 131]		300 ft. deep.
	35.40	On sharp ridge, 300 ft. high, bears N. and S. Descend by Stadia measurement,
		Angle 1° —. Rod 12.70 double = 2540 ft. × .9997 = 2539.24 ft. + C. = 1.15 ft. = 2540.39 ft. = 38.49 chs. + 35.40 chs. = 73.89 chs.
	47.00	Deep rocky canon, course S. W. about 300 ft. below last ridge.
	73.89	Stadia point on sharp spur slope S. Thence by tape measurement
7610 ft.	80.00	N. 110 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 110th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 110 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A spruce tree 16 ins. dia. bears N. 63½° E. 25 lks. dist. marked Colo., 110 M., B. T.
		A yellow pine tree 14 ins. dia. bears S. 41° E. 34 lks. dist. marked N. M., 110 M., B. T.
		A spruce tree 14 ins. dia. bears N. 16½° W. 49 lks. dist. marked Colo., 110 M., B. T.

Altitude	Chs.	
		No tree S. W. within limits suitable for bearing tree.
		Land, rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak brush, cedar, pinon, yellow pine and spruce timber.
		Alt. 7610 ft.
		Temp. 42°.
		November 18th, 1902

I examine the transit and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

111th Mile

		S. 89° 52′ E. on the tangent to the parallel.
		Descend.
	1.20	Bottom of dry ravine 50 ft. deep, course S. W.;
[fol. 132]		ascend steep.
	53.00	Top of ridge bears N. and S. about 300 ft. above bottom of ravine; descend.
	77.00	Dry gulch, course S. E. about 50 ft. below top of ridge; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point.
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
7960 ft.	80.00	N. 129 lks. from the tangent, on spur, slope S. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 111th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., and N. M., on S. and 111 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A yellow pine 18 ins. dia. bears N. 35° 20′ E. 23 lks. dist. marked Colo., 111 M., B. T.
		A cedar tree 10 ins. dia. bears S. 62° 20′ E. 52 lks. dist. marked N. M., 111 M., B. T.
		A yellow pine tree 10 ins. dia. bears S. 51° 20′ W. 111 lks. dist. marked N. M., 111 M., B. T.
		A yellow pine tree 14 ins. dia. bears N. 66° W. 88 lks. dist. marked Colo., 111 M., B. T.
		Land, rough and broken.

Altitude	Chs.	
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.
		Alt. 7900 ft.
		Temp. 50°.

112th Mile

		S. 89° 52′ E. on the tangent to the parallel.
		Descend.
	35.00	Bottom of rocky canon about 400 ft. deep, course S.; ascend.
		Difference between measurements of 57.37 chs. by 2 sets of chainmen is 4 lks. position of middle point.
[fol. 133]		By 1st set 57.39 chs.
		By 2nd set 57.35 chs.; the mean of which is
7900 ft.	57.37	On spur slope S.
		Stadia measurement.
		Angle 10′ +, Rod 11.76 double = 2352 ft. × .9698 = 2280.97 ft. + C. = 1.13 ft. = 2282.10 ft. = 34.57 chs. + 57.37 chs. = 91.94 chs. — 80.00 chs. = 11.94 chs. on 113th mile.
	65.00	Bottom of canon, course S. W.
	70.00	On spur slope N.
8090 ft.	80.00	Falls in edge of canon, course nearly W. impracticable to establish the cor. at this place.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce timber.

113th Mile

		S. 89° 51′ E. on the tangent to the parallel.
	11.94	Stadia point.
8400 ft.	16.00	N. 154 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 112th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 112.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A yellow pine tree 16 ins. dia. bears N. 46° E. 93 lks. dist. marked Colo., 112.2 M., B. T.

Altitude	Chs.	
		A yellow pine tree 14 ins. dia. bears S. 77° 20' W. 212 lks. dist. marked N. M., 112.2 M., B. T.
		A yellow pine tree 14 ins. dia. bears N. 20° W. 110 lks. dist. marked Colo., 112.2 M., B. T.
		No tree S. E. within limits.
		Alt. 8400 ft.
		Temp. 54°.
	23.00	Ravine near head, drains S. W.
8430 ft.	31.70	On W. bank of box canon, perpendicular walls about 300 ft. deep, course S., heads about 5 chs. N.
[fol. 134]		Stadia measurement,
		Angle 3° —, Rod 5.60 single = 560 ft. × .9973 = 558.49 ft. + C. = 1.15 ft. = 559.64 ft. = 8.48 chs. + 31.70 chs. = 40.18 chs.
	36.00	Bottom of canon, course S.
	40.18	On E. wall of canon, bears N. and S. same elevation as W. wall. Thence by tape measurement.
	77.50	Dry ravine, course S.
		Difference between measurements of 39.82 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 39.83 chs.
		By 2nd set 39.81 chs.; the mean of which is 39.82 chs. + 40.18 chs. =
8510 ft.	80.00	N. 172 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 113th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 113 M. stamped in the center. Raised mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pine tree 16 ins. dia. bears N. 24° 10' E. 117 lks. dist. marked Colo., 113 M., B. T.
		A yellow pine tree 10 ins. dia. bears S. 65° 25' E. 19 lks. dist. marked N. M., 113 M., B. T.
		A yellow pine tree 8 ins. dia. bears S. 15½° W. 86 lks. dist., marked N. M., 113 M., B. T.
		A yellow pine tree 18 ins. dia. bears N. 23° 45' W. 98 lks. dist. marked Colo., 113 M., B. T.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, oak brush, aspen, cedar, pinon, yellow pine and spruce.
		Alt. 8510 ft.
		Temp 46°.

November 19th, 1902

Altitude Chs

[fol. 135] I examine the adjustments of the transit compare the steel tapes with the standard and find all correct, and in adjustment.

114th Mile

S. 89° 30' E. on the tangent to the parallel.

10.63 The monument set by S. S. Gannett, 1897, for the intersection of the 37th parallel with the 107th meridian W. from Greenwich bears S. 1 lo chs. from this tangent and the offset to the parallel at this point is 1.75 chs. N. places this monument 3.15 chs. S. of the 37th parallel as determined by my line. This is a monument consisting of a porphyry stone 10 ins. square and 18 ins. high above ground marked.
On N.-S. E. cor. S. Ute Res., On E., 107 D. E. G.
On S. N. M., On W.-107 D. E. G. W. I.
Some bearing trees marked with nails driven in them forming letters, and at the N. a witness monument, about 6 ft. base, 3½ ft high. There are 3 blazed lines running through the timber W. from here for more than 5 miles, but after a careful search I failed to find any Darling corners along or near these lines.

12.00 Dry ravine, course S. about 20 ft. deep; ascend.
Archuleta Mountain bears N. and S.

42.00 Dry ravine, course S. W.

65.00 Enter grove of aspen timber bears N. and S.
Difference between measurements of 80 chs. by 2 sets of chainmen is 4 lks. position of middle point.
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is

8950 ft. 80.00 N. 196 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 114th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 114 M. stamped in the center. Raised a mound of stone
[fol. 136] 5 ft. base 2 ft. high around the post. Pits impracticable.
An aspen tree 6 ins. dia. bears S. 37° 20' E. 16 lks. dist. marked N. M., 114 M., B. T.
An aspen tree 42 ins. dia. bears S. 35° W. 67 lks. dist. marked N. M., 114 M., B. T.
A yellow pine tree 30 ins. dia. bears N. 59° W. 436 lks. dist. marked Colo., 114 M., B. T.

Altitude	Chs	
		No tree N. 9 within limits suitable for bearing tree.
		Land, mountainous.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, yellow pine, spruce and balsam fir, cedar, pinon and aspen, oak and aspen brush.
		Alt. 8950 ft.
		Temp. 50.

115th Mile

		S. 89° 50' E. on the tangent to the paralled.
		Ascend
9000 ft	11.50	Brown of mountain bears N. and S. Slope W. Altitude 9000 ft. Ascend gradually across top of mountain.
		Difference between measurements of 72 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 72.04 chs.
		By 2nd set 71.96 chs., the mean of which is
9050 ft	72.00	On E. brow of Archuleta Mountain, bears N. and S.
		As I find the 80 chs. point will be inaccessible I set the cor. at this point.
		N. 221 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom 2 ft. in the ground for 115th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 114.9 M. stamped in the center. Raised a mound of stone 3 ft. base 2 ft. high around the post. Pits impracticable.
		A yellow pine tree 14 ins. dia. bears N. 80° E. 104 lks. dist. marked Colo., 114.9 M., B. T.
[fol. 137]		A spruce tree 10 ins. dia. bears S. 29° 40' E. 43 lks. dist. marked N. M., 114.9 M., B. T.
		A yellow pine 10 ins. dia. bears S. 15° 30' W. 96 lks. dist. marked N. M., 114.9 M., B. T.
		A yellow pine tree 14 ins. dia. bears N. 35° W. 68 lks. dist. marked Colo., 114.9 M., B. T.
		Alt. 9050 ft.
		Temp. 45°.
	77.42	Thence by stadia measurement; descend.
		Angle 17 — Rod 43.00 double = 2600 ft. × .9145 = 2377.70 ft. ÷ 4 = 4.10 ft. = 2373.80 ft. = 36.04 chs. + 77.42 chs. = 113.46 chs. — 80.00 chs. = 33.46 chs. on 116th mile.
	80.00	Falls on side of cliff wall, inaccessible.

Altitude	Chs.	
		Land, mountainous. Soil, rocky and sandy, 3rd rate. Vegetation, yellow pine, balsam fir, cedar and aspen and oak brush.
		November 20th, 1902

I examine the transit, compare the tapes and find all correct and in adjustment.

116th Mile

		S. 89° 49' E. on the tangent to the parallel. Descend over rough rocky, broken mountain side.
	3.00	Foot of cliffs bears N. W. and S. E. about 450 ft. below cor.
	33.46	Stadia point, thence by tape measurement. Descend over spurs over S. E. slope. Difference between measurements of 46.54 chs. by 2 sets of chainmen is 6 lks. position of middle point. By 1st set 46.57 chs. By 2nd set 46.51 chs.: the mean of which is 46.54 chs. + 33.46 chs. =
8010 ft.	80.00	N. 247 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 116th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 116 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
[fol. 138]		A yellow pine tree 48 ins. dia. bears N. 17° E. 128 lks. dist., marked Colo., 116 M., B. T. A yellow pine tree 30 ins. dia. bears S. 66° 20' E. 146 lks. dist., marked N. M., 116 M., B. T. A yellow pine tree 24 ins. dia. bears S. 61° W. 78 lks. dist., marked N. M., 116 M., B. T. No tree N. W. within limits suitable for a bearing tree. Land, mountainous. Soil, sand and clay, 3rd rate. Vegetation, oak brush, scattering yellow pine and aspen. Alt. 8010 ft. Temp. 50°.

117th Mile

Altitude	Chs	
		S. 89° 48' E. on the tangent to the parallel. Descend over spurs.
7050 ft.	66.00	Foot of mountain bears N. and S. Enter nearly level valley.
	70.20	Wire fence bears N. and S. Enter Gomez's and Archuleta's field.

Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks.-position of middle point.
By 1st set 80.05 chs.
By 2nd set 79.95 chs.; the mean of which is

7050 ft.	80.00	N. 275 lks. from the tangent.

Set temporary cor.
Adjusted under instructions dated Sept. 9th, 1903.
See page 423.
Land, mountainous and valley.
Soil, sand and clay loam, 2nd and 3rd rate.
Vegetation, oak brush, scattering yellow pine.
Alt. 7050 ft.
Temp. 40°.

November 21st, 1902.

[fol. 139]

November 23rd I carefully adjust the transit in all its parts, compare the steel tapes with the standard and find them of correct length.
November 24th, at 3h 06m A. M. l. m. t. I observe Polaris at Western Elongation and mark a point in the line so found on a plug driven in the ground N. of my station.
At 8h A. M. November 24th, 1902, I lay off the azimuth of Polaris 1° 31.1' to the E. and mark a point in the true meridian thus determined, on a plug driven in the ground N. of my station.
The magnetic bearing of the meridian is N. 13° 53' W. This gives the magnetic variation, 13° 53' E.
I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

118th Mile

Altitude	Chs.	
		East on the tangent to the parallel.
	3.00	Road from Archuleta's store and grist mill to Edith bears N. and S.
	6.00	Our astronomical station No. 3 bears S. 29.68 chs. dist.
		The latitude of this station by astronomical observation on the nights of Oct. 5th, 6th and 7th, 1902, is determined to be 36° 59' 40.88" or 29.29 chs. South of the 37th parallel. Our line projected from the West is therefore 39 lks. N. of the true parallel, as determined by the astronomical observations.
		This being inside the limit allowed by the Hon. Commissioner I erect temporary astronomical monument at this point and continue the line. See page 424.
[fol. 140]		Thence across cultivated land.
	9.91	Coyote Creek, 15 lks. wide, course S.
	15.90	Narrow guage R. R. for hauling logs to the saw mill bears N. W. and S. E.
	36.80	Road bears N. and S.
	47.80	Leave cultivated field bears N. E. and S. W., wire fence.
		New Mexico Lumber Co.'s saw mill in center of town of Edith bears S. about 6 chs. dist.
	53.00	Small house on line.
	54.70	Center of main street in Edith bears N. E. and S. W.
	58.30	R. R. track to saw mill bears N. E. and S. W.
	63.00	River bottom; enter willow brush bears N. E. and S. W.
	75.30	Navajo River 75 lks. wide, clear water, about 2 ft. deep, swift current, course S. E.
		Difference between measurements of 74 chs. by 2 sets of chainmen is 4 lks. position of middle point
		By 1st set 74.02 chs.
		By 2nd set 73.98 chs.; the mean of which is 74.00 chs. + 6.00 chs. =
7050 ft.	80.00	Falls in patch of willow in river bottom, subject to over flow, impracticable to establish the cor at this point.
		Land, nearly level, valley and river bottom.
		Soil, sandy loam, 2nd rate.
		Vegetation, grass, sage, willow and cottonwood brush.

119th Mile

Altitude	Chs.	
		S. 89° 57′ E. on the tangent to the parallel.
	6.00	Leave river bottom bears N. E. and S. W.
	6.80	Ditch flume, course of water S. W.
	7.00	Road bears N. E. and S. W.
7100 ft.	8.00	N. 1 link from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 118th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 118.1 M.
[fol. 141]		stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A yellow pine tree 12 ins. dia. bears S. 61° E. 251 lks. dist. marked N. M., 118.1 M., B. T.
		S. end of bridge across Navajo River bears N. 3 E. about 3 chs. dist.
		S. end of ditch flume across the river bears N. 44° 20′ E. about 5 chs. dist.
		No other trees within limits.
		This cor. stands on sharp point of bluff, slope N.
		Alt. 7100 ft.
		Temp. 30°.
		Ascend along N. slope.
	13.00	Point of spur slope N. E. Descend; enter timber bears N. and S.
	18.00	Dry ravine, course N.; ascend.
	65.00	Top of spur slope N. about 700 ft. above last cor.
		Difference between measurements of 72 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 72.05 chs.
		By 2nd set 71.95 chs.; the mean of which is 72.00 chs. + 8.00 chs. =
7810 ft.	80.00	N. 3 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 119th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 119 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		This cor. stands on steep N. slope, in oak brush.
		No tree within limits suitable for bearing trees.
		Land, mountainous.
		Soil, rocky, clay and sandy, 3rd rate.
		Vegetation, grass, oak and aspen brush, yellow pine, spruce, fir, cedar and pinon.
[fol. 142]		Alt. 7810 ft.
		Temp. 38°.

120th Mile

Altitude	Chs.	
		S. 89° 59' E. on the tangent to the parallel. Along steep [illegible] slope, through oak, aspen and pine brush.
	17.44	On sharp spur slope N., very steep.
		Stadia measurement.
		Angle 8° +. Rod 13.00 double = 2600 ft. × .9806 = 2549.56 ft. + [illegible] = 1.14 ft. = 2550.70 ft. = 38.64 chs. + 17.44 chs. = 56.08 chs.
	39.00	Bottom of dry canon about 600 ft. deep, course N. W.
	49.00	Wagon road in canon bears N. W. and S. E.; ascend.
	56.08	Stadia point on E. wall of canon, bears N. W. and S. E. about 600 ft. above bottom, thence by tape measurement.
		Ascend gradually.
		Difference between measurements of 23.92 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 23.93 chs.
		By 2nd set 23.91 chs.; the mean of which is 23.92 chs. + 56.08 chs. =
8300 ft.	80.00	N. 7 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 120th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 120 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A yellow pine tree 18 ins. dia. bears N. 40° E. 75 lks. dist. marked Colo., 120 M., B. T.
		A yellow pine tree 6 ins. dia. bears S. 17° 40' E. 70 lks. dist. marked N. M., 120 M., B. T.
		A yellow pine tree 16 ins. dia. bears S. 55½° W. 91 lks. dist., marked N. M., 120 M., B. T.
[fol. 143]		A yellow pine tree 10 ins. dia. bears N. 35° W. 55 lks. dist. marked Colo., 120 M., B. T.
		Land mountainous.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, grass, oak and aspen brush, yellow pine, spruce, fir, cedar and aspen timber.
		Alt. 7810 ft.
		Temp. 38°.

November 24th, 1902.

Altitude	Chs.	
		I examine the adjustment of the transit and compare the steel tapes with the standard, find all correct and in adjustment.

121st Mile

		S. 89° 58' E. on the tangent to the parallel.
	17.76	Top of spur slope N. W. about 10 ft. above last station.
		Stadia measurement,
		Angle 1° +. Rod 12.98 double. = 2.596 ft. × .9997 = 2,595.22 ft. + C. 1.15 ft. = 2,596.37 ft. = 39.34 chs. + 17.76 chs. = 57.10 chs.
	42.00	Bottom of dry canon about 400 ft. deep, course N. W.
	57.10	On spur slope S.; thence by
		Tape measurement.
	69.60	Dry ravine, course S.
8400 ft.	75.00	Top of rocky spur slope S. As I find the 80 chs. point will fall in brush on rocky wall of canon, I place the 121st mile cor. at this point.
		N. 12 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 121st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 120.937 M. stamped in the center. Raised a mound of stone 5 ft. base 3 ft. high around the post. Pits impracticable.
		A yellow pine tree 10 ins. dia. bears N. 65° E. 85 lks. dist. marked Colo., 120.937 M., B. T.
[fol. 144]		A yellow pine tree 18 ins. dia. bears S. 57° E. 118 lks. dist. marked N. M., 120.937 M., B. T.
		A yellow pine tree 16 ins. dia. bears S. 54° W. 118 lks. dist. marked N. M., 120.937 M., B. T.
		A yellow pine tree 18 ins. dia. bears N. 40° W. 51 lks. dist. marked Colo., 120.937 M., B. T
	80.00	Falls on rocky side of canon, impracticable to establish the cor. at this point.
		Land, mountainous.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak and aspen brush, pine, spruce, and balsam fir timber.
		Alt. 8,400 ft.
		Temp. 52°.

122nd Mile

Altitude	Chs.	
		S. 89° 57′ on the tangent to the parallel.
	15.00	Bottom of dry canon, about 200 ft. deep, course S. W.
		Ascend.
	52.00	Top of spur slope N.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 12 lks. position of middle point.
		By 1st set 80.06 chs.
8760 ft.	80.00	By 2nd set 79.94 chs.; the mean of which is N. 19 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 122nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 122 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N. S. E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A yellow pine tree 35 ins. dia. bears N. 46° 20′ E. 335 lks. dist. marked Colo. 122 M., B. T.
[fol. 145]		A yellow pine tree 26 ins. dia. bears S. 52° W. 204 lks. dist. marked N. M., 122 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, mountainous.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, oak and aspen brush, pine, spruce and balsam fir timber.
		Alt. 8,760 ft.
		Temp. 48°.

November 25th, 1902.

Having run the line through to the 4th Astronomical Station, near Ortiz, on our 167th mile and found the falling to be 13.50 chs. North of the 37th parallel as determined by astronomical observations on the nights of October 12th and 13th, 1902, this being 8.90 chs. outside of the limit of 3″ of arc allowed by the Hon. Commissioner in accordance with Special Instructions dated July 7th, 1902, I return to this point and apply a correction of 21 lks. per mile to the South amounting to 9.24 chs. for the 44 miles, from the 122nd mile to the 166th mile corners, to bring the line inside of said limit.

July 12th, 1903.

Altitude	Chs.	
		I examine and adjust the transit, test the stadia wires for correct measurement, compare the steel tapes with the standard and find all correct.

123rd Mile

S. 89° 57′ E. on the tangent to the parallel.
Ascending gradually along N. W. slope, through scattering timber and brush.

8810 ft.	6.00	Top of high bluff, bears N. W. and S. E.; descend.
	8.31	Stadia measurement from this point.
		A red peak at S. end of high range bears N. 41° 51′ E. about 15 miles dist.
		Sharp peak on Conejos Range bears N. 77° E. about 25 miles dist.
[fol. 146]		A sharp timbered conical peak bears S. 62° 18′ E. about 8 miles dist.
		By Stadia.
		Angle 16 —, Rod 13.00 double = 2,600 ft. × .9240 = 2,402.40 ft. + C. = 1.10 ft. = 2,403.50 ft. = 36.41 chs. + 8.31 chs. = 44.72 chs.
8000 ft.	33.00	Foot of bluff about 800 ft. high, bears N. W. and S. E., thence over rolling brushy land.
	44.72	Stadia point, thence by tape measurement.
		Difference between measurements of 43.59 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 43.62 chs.
		By 2nd set 43.56 chs.; the mean of which is 43.59 chs. + 36.41 chs. =
7800 ft.	80.00	N. 27 lks.—Correction 21 lks. S = N. 6 lks. from tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 123rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 123 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E., and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		An aspen tree 6 ins. dia. bears N. 44° 20′ E. 54 lks. dist. marked Colo., 123 M., B. T.
		An aspen tree 14 ins. dia. bears S. 3° 10′ E. 53 lks. dist. marked N. M., 123 M., B. T.
		An aspen tree 6 ins. dia. bears S. 51° W. 54 lks. dist. marked N. M., 123 M., B. T.
		An aspen tree 6 ins. dia. bears N. 8° 40′ W. 78 lks. dist. marked Colo., 123 M., B. T.
		Land, rough and broken.

Altitude	Chs.	
		Soil, rocky and sandy, 3rd rate.
		Vegetation, scattering pine and aspen timber; oak and aspen brush.
		Alt. 7,800 ft.
		Temp. 82

[fol. 147] 124th Mile

		S. 89° 56' E. on the tangent to the parallel.
		Over rolling hills and scattering timber and brush.
	41.15	W. edge of little valley, bears N. and S.
	50.20	Trail bears N. and S.
	55.00	Leave valley and ascend; bears N. and S.
	65.00	Top of spur about 75 ft. high, slope N.; descend.
	70.00	Enter little valley bears N. W. and S. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks. position of middle point.
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
7650 ft.	80.00	N. 37 lks.—Correction 42 lks. S.=S. 5 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 124th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 124 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A yellow pine tree 12 ins. dia. bears N. 21½° E. 147 lks. dist. marked Colo., 124 M., B. T.
		A yellow pine tree 12 ins. dia. bears S. 9° 35' W. 403 lks. dist. marked N. M., 124 M., B. T.
		A yellow pine tree 12 ins. dia. bears N. 51° 45' W. 391 lks. dist. marked Colo., 124 M., B. T.
		No tree S. E. within limits suitable for bearing tree.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, scattering pine timber; oak and aspen brush.
		Much of the timber has been cut off.
		Alt. 7,650 ft.
		Temp. 85°.

[fol. 148] 125th Mile

Altitude	Chs.	
		S. 89° 55′ E. on the tangent to the parallel.
		Over rolling land.
	5.00	Bottom of dry gulch, course N.
	6.00	Trail bears N. and S. Foot of hill bears N. and S. Leave small valley; ascend.
	15.00	Top of spur about 50 ft. high, slope N. W.; descend.
	35.00	Foot of hill, enter small valley bears N. W. and S. W.
	36.00	Grade of old logging railroad bears N. W. and S. W.
	43.90	Dry gulch, course N.
	48.56	Dry gulch, course N. W.
	63.00	Foot of hills, leave valley bears N. W. and S. E.; ascend.
	70.00	Top of spur about 50 ft. above valley, slope S.; descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is
7710 ft.	80.00	N. 49 lks.—Correction 63 lks. S.= S. 14 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 125th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 125 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A yellow pine tree 14 ins. dia. bears N. 52° 40′ E. 132 lks. dist. marked Colo., 125 M., B. T.
		No other trees within limits.
		Land, rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, scattering pine timber, oak and aspen brush; grass and sage.
[fol. 149]		Alt. 7710 ft.
		Temp. 85°.

July 12th, 1903.

I examine the adjustments of the transit, compare the steel tapes with the standard, and find everything correct and in adjustment.

Altitude	Chs.	126th Mile
		S. 89° 53′ E. on the tangent to the parallel.
		Ascending through brush and scattering timber.
	22.00	Top of ridge 75 ft. high, bears S. E. and N. W.
	29.00	In small valley bears N. E. and S. W.
	36.00	Timber road bears S. E. and N. W.
	42.00	Leave valley, ascend, bears S. E. and N. W.
	53.00	On spur slope N. W.; about 100 ft. high; descend.
	75.00	In broad ravine, course N.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks. position of middle point.
		By 1st set 80.07 chs.
		By 2nd set 79.93 chs.; the mean of which is
8050 ft.	80.00	On S. W. slope in dense brush, I advance this corner.
		Land, rough and broken.
		Soil, clay loam, 3rd rate.
		Vegetation, oak and aspen brush, heavy pine timber has been cut off, now scattering.

127th Mile

S. 89° 54′ E. on the tangent to the parallel.
Ascend in dense brush.

8200 ft.	3.00	Top of spur slope N.

N. 62 lks.—Correction 84 lks. S. = S. 22 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 126th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 126.037 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.

[fol. 150]

A yellow pine tree 12 ins. dia. bears N. 19° 50′ E. 93 lks. dist. marked Colo., 126.037 M., B. T.
A yellow pine tree 20 ins. dia. bears S. 62° E. 115 lks. dist. marked N. M., 126.037 M., B. T.
A yellow pine tree 10 ins. dia. bears S. 34° 10′ W. 112 lks. dist. marked N. M., 126.037 M., B. T.
A spruce tree 6 ins. dia. bears N. 74° 10′ W. 72 lks. dist. marked Colo., 126.037 M., B. T.
Alt. 8200 ft.
Temp. 62°.
Descend.

20.00	Dry gulch, course N.; ascend.
33.00	Top of spur 100 ft. high, slope N. W.

Altitude	Chs.	
8200 ft.	53.00	Bottom of dry ravine, course N. W.; ascend in dense oak brush.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks. position of middle point.
		By 1st set 80.08 chs.
		By 2nd set 79.92 chs.; the mean of which is
8560 ft.	80.00	N. 76 lks. Correction 105 lks. S. = S. 29 lks. from the tangent.
		Set an iron pipe 2 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 127th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 127 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A yellow pine tree 24 ins. dia. bears N. 36° E. 370 lks. dist. marked Colo., 127 M., B. T.
		No other trees within limits. This cor stands on a bench about 200 ft. above the bottom of the ravine.
[fol. 151]		Land, rough and broken.
		Soil, clay loam, 3rd rate.
		Vegetation, oak and aspen brush, scattering pine timber.
		Alt. 8500 ft.
		Temp. 60°

128th Mile

		S. 89° 53' E. on the tangent to the parallel. Ascend steep S. W. slope in dense oak brush.
	28.29	On spur slope N.
	51.00	Top of spur slope N. Enter timber, thence along N. slope.
8800 ft.	66.79	Top of bluff bears N. and S. about 300 ft. above last cor.
		Descend.
		Stadia measurement.
		Angle 3° —, 12.98 double = 2596 ft. × .9973 = 2588.99 ft. + C. = 1.15 ft. = 2590.14 ft. = 39.24 chs. + 66.79 chs. = 166.03 chs. — 80.00 chs. = 26.03 chs. on 129th mile.
8300 ft.	80.00	Comes in ravine about 500 ft. below top of bluff, stream 3 lks. wide, course N. I advance this cor.
		Land, mountainous.
		Soil, rocky, 3rd rate.
		Vegetation, pine and spruce timber; oak and aspen brush.

Altitude	Chs.	129th Mile
		S. 89° 53' E. on the tangent to the parallel. Ascend in dense timber and brush.
	26.02	Stadia point, thence by tape measurement.
8900 ft.	32.00	N. 99 lks.—Correction 131 lks. S. = S. 35 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 128th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 128.4 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised
[fol. 152]		a mound of earth 5 ft. base 2 ft. high around the post.
		An aspen tree 7 ins. dia. bears N. 46½° E. 29 lks. dist. marked Colo., 128.4 M., B. T.
		An aspen tree 6 ins. dia. bears S. 57° E. 97 lks. dist. marked N. M., 128.4 M., B. T.
		An aspen tree 7 ins. dia. bears N. 18° W. 124 lks. dist. marked Colo., 128.4 M., B. T.
		No tree within limits S. W. suitable for bearing tree.
		Alt. 8900 ft.
		Temp. 60°.
		Thence along bench; swampy meadow drains N.
	50.00	Foot of ridge bears N. E. and S. W. Leave bench; ascend.
		Enter timber bears N. E. and S. W.
9100 ft.	55.50	Top of ridge bears N. E. and S. W., 200 ft. above cor.
	58.00	Spur slope N. E., descend general course of draw, through spruce and aspen timber.
		Difference between measurements of 80.00 chs by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs., the mean of which is
8950 ft.	80.00	N. 110 lks. Correction 147 lks. S. = S. 37 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 129th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 129 M., tamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		An aspen tree 12 ins. dia. bears N. 11° 20' E. 37 lks. dist. marked Colo., 129 M., B. T.
		An aspen tree 8 ins. dia. bears S. 64½° E. 21 lks. dist. marked N. M., 129 M., B. T.
		A spruce tree 12 ins. dia. bears S. 51½° W. 62 lks. dist. marked N. M., 129 M., B. T.

Altitude	Chs.	
		A spruce tree 18 ins. dia. bears N. 70° 45′ W. 41 lks. dist. marked Colo., 129 M., B. T.
[fol. 153]		Land, mountainous.
		Soil, clay loam, 3rd rate.
		Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.
		Alt. 8950 ft.
		Temp. 64°.

130th Mile

		S. 89° 52′ E. on the tangent to the parallel.
		Descending through timber and brush.
	16.00	Dry ravine, course N. E.
	25.00	Spur slope, N. E.; descend.
	35.00	Bottom of ravine, 100 ft. deep, course N. E.; ascend.
	49.00	Top of spur 150 ft. above bottom of ravine, slope N. E.; descend.
	60.00	Ravine, water in holes, course N. E.; ascend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 20 lks., position of middle point.
		By 1st set 80.10 chs.
		By 2nd set 79.90 chs.; the mean of which is
9000 ft.	80.00	N. 129 lks.—Correction 168 lks. S.=S. 39 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 130th mile cor. A brass cap on top of the pipe has raised letters Colo.-on N., N. M. on S. and 130 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft high around the post. Pits impracticable.
		This cor. stands on Continental Divide, which bears N. 65° E. and S. 65° W. for about 30 chs. then about S. 30° W.
		A yellow pine tree 24 ins. dia. bears N. 61½° E. 26 lks. dist. marked Colo., 130 M., B. T.
		A spruce tree 16 ins. dia. bears S. 57½° E. 125 lks. dis. marked N. M., 130 M., B. T.
		A yellow pine tree 12 ins. dia. bears S. 5° W. 137 lks. dist. marked N. M., 130 M., B. T.
		A spruce tree 10 ins. dia. bears N. 49° W. 146 lks. dist. marked Colo., 130 M., B. T.
[fol. 154]		Land, mountainous, rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, grass; pine, spruce and aspen timber; dense oak, aspen, serviceberry and maple brush.
		Alt. 9000 ft.
		Temp. 64°. July 13th, 1903.

Altitude	Chs.	
		I examine the transit both as to levels and collimation, and find it in adjustment, compare the steel tapes with the standard and find them of correct length.

131st Mile

		S. 89° 52′ E. on the tangent to the parallel. Descending along S. E. slope through timber and brush.
	33.00	Leave timber and brush bears N. and S.
	40.92	Wagon road, from Navajo River to Chama bears N. W. and S. E.
8850 ft.	54.78	Little Chama River, stream 4 lks. wide, course S. E.; thence across little valley.
	69.80	Leave valley, bears N. E. and S. W.; ascend. Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is
8900 ft.	80.00	N. 150 lks.—Correction 189 lks. S. = S. 39 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 131st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 137 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		An aspen tree 16 ins. dia. bears S. 34½° W. 21.0 lks. dist. marked N. M. 131 M., B. T.
		No other trees within limits.
[fol. 155]		This corner stands at W. edge of dense oak brush.
		Red Peak, Navajo Range, bears N. 28° 43′ E. about 8 miles distant.
		Land mountainous.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.
		Alt. 8900 ft.
		Temp. 50°.

132nd Mile

		S. 89° 51′ E. on the tangent to the parallel. Ascend; enter dense oak brush bears N. and S.
	15.60	Top of spur slope S. W. thence along S. slope, crossing gulches.

Altitude	Chs.	
	43.00	Top of spur slope S. about 200 ft. above last corner.
		Descend in dense aspen brush.
9000 ft.	80.00	Comes in aspen thicket on steep E. slope.
		I advance this cor.
		Land, mountainous.
		Soil, sandy loam, 3rd. rate.
		Vegetation, grass; scattering pine timber; dense oak and aspen brush.
		Alt. 9,000 ft.
		Temp. 50°.

133rd Mile

		S. 89° 30' E. on the tangent to the parallel.
		Descending in dense aspen brush.
	10.00	*Stream 6 lks. wide, course S. W.; ascend.
	12.00	On bench about 30 ft. above stream, bears N. E. and S. W.; leave aspen timber and brush bears N. E. and S. W.
9200 ft.	16.00	In little open flat.
		Difference between measurements of 96.00 chs. by 2 sets of chainmen is 12 lks. position of middle point.
		By 1st set 96.06 chs.
		By 2nd set 95.94 chs.; the mean of which is 96.00
[fol. 156]		chs.—80.00 chs. = 16.00 chs. on 133rd mile.
		N. 177 lks.—Correction 214 lks. S. = S. 37 lks., from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 132nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 132.2 B stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A spruce tree 18 ins. dia. bears S. 80° 173 lks. dist. marked N. M., 132.2 M. B. T.
		An aspen tree 5 ins. dia. bears S. 47½° W. 182 lks. dist. marked N. M., 132.2 M., B. T.
		An aspen tree 5 ins. dia. bears N. 48° W. 167 lks. dist. marked Colo., 132.2 M., B. T.
		No tree within limits N. E. suitable for bearing tree.
		Alt. 9200 ft.
		Temp. 50°.
		Ascend.
	19.20	Top of ridge bears N. E. and S. W.; enter timber bears N. E. and S. W.

Altitude	Chs.	
		Descend.
	33.50	Timber road, bears N. E. and S. W.
	37.00	Stream 6 lks. wide in ravine, about 30 ft. deep, course S. W.
	40.00	On bluff—bears N. E. and S. W.; ascend, enter timber bears N. E. and S. W.
	70.00	Foot of hill bears N. E. and S. W. Enter timber bears N. E. and S. W.
		Difference between measurements of 64.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 64.02 chs.
		By 2nd set 63.98 chs.; the mean of which is 64.00 chs. + 16.00 chs. =
9250 ft.	80.00	N. 196 lks.—Correction 231 lks. S. = S. 35 lks. from the tangent.
[fol. 157]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 133rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M., on S. and 133 M. stamped in the center. Raised a mound of stone 5 ft., base 2 ft. high around the post. Pits impracticable.
		This cor. stands on N. W. slope in heavy timber.
		A spruce tree 16 ins. dia. bears N. 43½° E. 81 lks. dist. marked Colo., 133 M., B. T.
		A spruce tree 14 ins. dia. bears S. 26½° W. 70 lks. dist. marked N. M., 133 M., B. T.
		A spruce tree 16 ins. dia. bears N. 80° W. 61 lks. dist. marked Colo. 133 M., B. T.
		No tree S. E. within limits suitable for bearing tree.
		Land, mountainous.
		Soil, clay loam, 3rd rate.
		Vegetation, grass; pine, spruce and aspen timber; oak and aspen brush.
		Alt. 9250 ft.
		Temp. 65°.

134th Mile

		S. 89° 50′ E. on the tangent to the parallel. Ascend.
9400 ft.	16.00	Top of ridge bears N. E. and S. W., about 150 ft. above last corner, much dead and fallen timber. Descend along S. E. and S. slopes in dense brush.
	52.00	Bottom of dry ravine, course S.; ascend.
	64.00	Top of bluff bears N. and S.

Altitude	Chs.	
	66.06	On high spur slope S. As I find the 80.00 chs. point will come in deep canon, subject to snow slides, I place the corner at this point.
		Difference between measurements of 66.00 chs. by 2 sets of chainment is 12 lks., position of middle point
		By 1st set 66.06 chs.
		By 2nd set 65.91 chs.; the mean of which is,
9610 ft.	66.00	N. 2.6 lks. Correction 251 lks. S. = S. 35 lks. from the tangent.
[fol. 158]		Set an iron pipe 3 ins. dia. 4 ft. long with flnages at the bottom 2 ft. in the ground for 134th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 133.825 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		An aspen tree 8 ins. dia. bears S. 28° E. 29 lks. dist. marked N. M., 133.825 M., E. T.
		An aspen tree 6 ins. dia. bears S. 19° W. 15 lks. dist. marked N. M., 133.825 M., B. T.
		No trees on other side within limits suitable for bearing trees.
		Alt. 9640 ft.
		Temp. 70°.
	68.00	On edge of high bluff, thence by stadia measurement.
		Angle 16° — ; Rod 1630, double = 2060 ft. × .9240 = 1903.44 ft. + C. = 1.10 = 1904.54 ft., = 28.85 chs. + 68.00 chs. = 96.85 chs. — 80.00 chs. = 16.85 chs. on 135th mile.
9110 ft.	80.00	Comes in deep ravine subject to snow slides.
		No corner set here.
		Land, mountainous.
		Soil, clay and sand, 3rd rate.
		Vegetation, grass; pine and spruce timber; oak, aspen and willow brush.

135th Mile

S. 89° 49′ E. on the tangent to the parallel. Ascend in dense timber and brush.

9300 ft.	16.85	Stadia point on spur slope S.; descend.
	35.00	Bottom of canon, 150 ft. below top of spur; W. fork of Chama River, 10 lks. wide, course S. W.; ascend along N. slope in timber and brush.
	70.00	Top of spur about 490 ft. above stream, slope N.; descend.

Altitude	Chs.	
		Difference between measurements of 63.15 chs by 2 sets of chainmen is 10 lks. position of middle point
		By 1st set 63.20 chs.
[fol. 159]		By 2nd set 63.10 chs.; the mean of which is 63.15 chs. + 16.85 chs. =
9500 ft.	80.00	Comes in gulch, course N. W. Stream 3 lks. wide.
		Impracticable to establish the cor. at this point.
		Land, mountainous, very rough and broken.
		Soil, rocky, 3rd rate.
		Vegetation, grass; spruce and pine timber; oak and aspen brush.

136th Mile

		S. 89° 49′ E. on the tangent to the parallel. Ascend in dense timber and brush.
9750 ft.	24.00	N. 255 lks.—Correction 279 lks. S. = S. 24 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 ft. in the ground for 135th mile cor. A brass cap on top of the pipe has raised letters Colo on N., N. M. on S. and 135.3 M, stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		This corner stands in little opening on sharp spur, slope S. Train about 1 ch. South.
		A spruce tree 24 ins. dia. bears S. 55° 86 lks. dist. marked N. M., 135.3 M., B. T.
		A spruce tree 16 ins. dia. bears S. 85° W. 86 lks. dist. marked N. M., 135.3 M., B. T.
		A spruce tree 16 ins. dia. bears N. 15° W. 111 lks. dist. marked Colo., 135.3 M., B. T.
		No tree within limits N. E. suitable for bearing tree.
		Alt. 9750 ft.
		Temp. 70°.
		Ascend in dense timber.
10000 ft.	56.00	Top of high divide between Chama River and West Fork, Bears N. and S. Elevation 10,000 ft.
[fol. 160]		(This range is called the Navajo Mountains.)
	65.00	Leave timber bears N. and S.
	78.50	Enter timber bears N. E. and S. W.
		Difference between measurements by 2 sets of chainmen is 6 lks., position of middle point
		By 1st set 56.03 chs.
		By 2nd set 55.97 chs.; the mean of which is 56.00 chs. + 24.00 chs. =

Altitude	Chs.	
10000 ft	80.00	N. 275 lks.—Correction 2·4 lks. S. = S. 19 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 136th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 136 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.

A spruce tree 14 ins. dia. bears N. 34° E. 29 lks. dist. marked N. M., 136 M., B. T.

A spruce tree 10 ins. dia. bears S. 65½° E. 26 lks. dist. marked Colo., 136 M., B. T.

A spruce tree 16 ins. dia. bears S. 41½° W. 36 lks. dist. marked N. M., 136 M., B. T.

A spruce tree 12 ins. dia. bears N. 30° W. 45 lks. dist. marked Colo., 136 M., B. T.

Land, mountainous.

Soil, clay loam, 3rd rate.

Vegetation, grass; spruce, aspen and pine timber; spruce and aspen brush.

Alt. 10,000 ft.

Temp. 75°.

July 14th, 1903.

Having carefully adjusted the transit in all its parts at the 136th mile corner, I observe Polaris at Western elongation, at 2h. 46m A. M. l. m. t. Nov. 29th, 1902, and mark at point on the line so found, on a plug driven in the ground N. of my station.

At 8h A. M. Nov. 29th, I lay off the azimuth of Polaris, 1° 31.1′ to the E. and mark a point in the true meridian thus determined on a plug [fol. 161] driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 13° 50′ W.

This gives the magnetic variation 13° 50′ E.

I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.

N. B.—These observations on Polaris for Meridians were taken and the tangent cut out through the timber and brush before the correction and subsequent adjustment of the line was made, hence the difference in date. See report.

Altitude	Chs.	
		July 15th, 1903, at 8h A. M. I examine the transit and compare the steel tapes with the standard, and find all correct.

137th Mile

		East on the tangent to the parallel.
	4.00	Top of bluff bears N. and S.; descend over benches in timber.
	31.00	Bluff bears N. and S.; descend.
	40.00	Head of gulch course N. E.
	75.00	Hollow drains N.; ascend.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 80.04 chs.
9500 ft.	80.00	By 2nd set 79.96 chs.; the mean of which is N. .76 of a lk.—Correction 315 lks. S. = S. 314.24 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 137th mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N. M., on S. and 137 M.
[fol. 162]		stamped in the center. Raised a mound of stone 3 ft. base 2 ft. high around the post. Pits impracticable.
		An aspen tree 10 ins. dia. bears N. 55½° E. 72 lks. dist. marked Colo., 137 M., B. T.
		An aspen tree 9 ins. dia. bears S. 87½° E. 154 lks. dist. marked N. M., 137 M., B. T.
		An aspen tree 12 ins. dia. bears S. 39½° W. 90 lks. dist. marked N. M., 137 M., B. T.
		A spruce tree 10 ins. dia. bears N. 32° W. 151 lks. dist. marked Colo., 137 M., B. T.
		This cor. stands in little opening on flat spur slope N.
		Land, mountainous.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass; spruce, pine and aspen timber; spruce and aspen brush.
		Alt. 9500 ft.
		Temp. 75°.

138th Mile

		S. 89° 59′ E. on the tangent to the parallel
		Descend over timber and brush.

Altitude	Chs.	
9275 ft.	67.35	On River bluff bears N. W. and S. E. Descend very steep E. slope in dense aspen and willow brush.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 18 lks. position of middle point.
		By 1st set 80.09 chs.
8850 ft.	80.00	By 2nd set 79.91 chs.; the mean of which is N. 3 lks.—Correction 336 lks. S. = S. 333 lks. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 139th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M., on S. and 138 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the cor. Pits impracticable. This cor. stands on a little spur slope S. E. about 75 ft. above river bottom.
[fol. 163]		An aspen tree 5 ins. dia. bears N. 32½° E. 53 lks. dist. marked Colo., 138 M., B. T. An aspen tree 5 ins. dia. bears N. 56½° E. 73 lks. dist. marked N. M., 138 M., B. T. An aspen tree 5 ins. dia. bears S. 60° W. 18 lks. dist. marked N. M., 138 M., B. T. An aspen tree 5 ins. dia. bears N. 7° W. 32 lks. dist. marked Colo., 158 M., B. T. Land, mountainous, rough and broken. Soil, rocky, clay loam, 3rd rate. Vegetation, grass; spruce and pine timber; oak, willow and aspen brush. Alt. 8850 ft. Temp. 75°.

139th Mile

		S. 89° 59' E. on the tangent to the parallel. Descend.
	4.00	Foot of bluff about 500 ft. high, bears N. W. and S. E.; thence across river bottom.
8750 ft.	13.00	Chama River, 75 lks. wide, clear water, 2 ft. deep, course S. E. Altitude 8750 ft.; ascend.
	17.00	Top of low bluff, about 50 ft. above water, bears N. W. and S. E. thence along S. slope.
	55.00	On high spur slope S. about 250 ft. above last cor.; descend.
	70.00	Bottom of broad ravine, stream 10 lks. wide, course S. about 200 ft. below top of spur.

Altitude	Chs.	
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is
8900 ft.	80.00	This point comes on S. slope in dense brush. Advance this cor.
		Land, mountainous.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, grass, sage; scattering pine and aspen timber; dense oak and aspen brush.

140th Mile

		S. 89° 58′ E. on the tangent to the parallel.
[fol. 164]		Ascend in dense oak brush.
	5.00	Top of spur slope S.; descend.
	10.00	Stream 3 lks. wide, course S. W.
9500 ft.	39.77	On sharp spur slope S. W.
		Difference between measurements of 39.77 chs. by 2 sets of chainmen is 12 lks. position of middle point
		By 1st set 39.83 chs.
		By 2nd set 39.71 chs.; the mean of which is 39.77 chs.
		N. 9 lks.—Correction 367 lks. S. = S. 358 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 139th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 139.497 M. stamped in the center. Raised a mound of stone 3 ft. base 2 ft. high around the post. Pits impracticable.
		An aspen tree 6 ins. dia. bears N. 26° E. 59 lks. dist. marked Colo., 139.497 M., B. T.
		An aspen tree 6 ins. dia. bears N. 21½° W. 77 lks. dist. marked Colo., 139.497 M., B. T.
		No tree on S. side suitable for bearing trees.
		S. face of rock cliff bears S. 77½° E.
		First sharp peak on range bears N. 68½° W.
		Alt. 9500 ft.
		Temp. 75°.
		Descend.
	42.00	Bottom of ravine 50 ft. deep, stream 2 lks. wide, course S. W.; ascend.
	51.00	Top of spur slope S. W.; descend.
	62.00	Bottom of ravine 50 ft. deep, stream 5 lks. wide, course S. W.; ascend steep rocky W. slope.

Altitude	Chs.	
		Difference between measurements of 40.23 chs. by 2 sets of chainmen is 10 lks., position of middle point
		By 1st set 40.28 chs.
		By 2nd set 40.18 chs.; the mean of which is 40.23 chs. + 39.77 chs. =
9900 ft.	80.00	N. 12 lks.—Correction 378 lks. S. = 366 lks. from the tangent.
[fol. 165]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 140th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 140 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		An aspen tree 6 ins. dia. bears N. 68° E. 51 lks. dist. marked Colo., 140 M., B. T.
		An aspen tree 5 ins. dia. bears S. 32° E. 53 lks. dist. marked N. M., 140 M., B. T.
		An aspen tree 5 ins. dia. bears S. 35° W. 31 lks. dist. marked N. M., 140 M., B. T.
		An aspen tree 5 ins. dia. bears N. 37½° W. 73 lks. dist. marked Colo., 140 M., B. T.
		Land, mountainous.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, grass; scattering spruce and aspen timber; dense aspen brush.
		Alt. 9900 ft.
		Temp. 70°.

141st Mile

		S. 89° 57′ E. on the tangent to the parallel. Ascend in aspen timber and brush.
	5.00	Top of high spur slope S.; thence descend gradually along S. slope.
		Thence by stadia measurement,
		Angle 5° +, Rod 10.00 double = 2000 ft. × .9924 = 1984.80 ft. + C. = 1.14 ft. = 1985.94 ft. = 30.09 chs. + 5.00 chs. = 35.09 chs.
	15.00	Small lake about 3 chs. wide extends about 2 chs. N. and 5 chs. S.
	25.00	Foot of hill bears N. W. and S. E.; ascend.
10000 ft.	34.00	Top of spur slope S. Altitude 10000 ft.; descend.
	35.09	Stadia point, thence by tape measurement,
	55.23	Post by R. R. track near switch at Cresco, marked C. on N., 191 M. on E. and N. M. on S., supposed to be Darling's 191st mile cor., restored by

Altitude	Chs.	
[fol. 166]		Mr. F. M. Johnson in 1900 or 1901 bears S. 40 93 chs. dist. West of this point I failed to find any of the Darling corners I could identify, since leaving his 243rd mile, west of the San Juan River.
		Descend along steep S. slope.
9700 ft.	80.00	Comes in bottom of ravine, stream 2 lks. wide, course S. (The stream that supplies the R. R. tanks at Cresco switch about 30 chs. South.) Impracticable to establish the corner at this point.
		Land, mountainous, rough and broken.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, grass; spruce and aspen timber; oak and aspen brush.

142nd Mile.

		S. 89° 57' E. on the tangent to the parallel. Ascend over broken S. slope.
		Difference between measurements of 62.31 chs. by 2 sets of chainmen is 14 lks., position of middle point
		By 1st set 62.38 chs.
		By 2nd set 62.24 chs.; the mean of which is 62.31 chs. + 30.09 chs. = 92.40 chs. — 80.00 chs. = 12.40 chs. on 142nd mile.
9700 ft.	12.40	N. 20 lks.—Correction 402 lks. S. = S. 382 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 141st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 141.155 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A spruce tree 16 ins. dia. bears N. 52° E. 215 lks. dist. marked Colo., 141.155 M., B. T.
		A spruce tree 24 ins. dia. bears S. 17½° W. 120 lks. dist. marked N. M., 141.155 M., B. T.
		No other trees within limits suitable for bearing trees.
[fol. 167]		This cor. stand on sharp ridge slope S. about ½ mile North-easterly from the D. & R. G. R. R. tank at Cresco.
		Alt. 9700 ft.
		Temp. 70°.

July 15th, 1902.

Altitude	Chs.	
		I examine the transit, compare the steel tapes with the standard and find all correct and in adjudgment.
		Thence along S. slope through timber and brush, crossing gulches and ridges.
	50.00	On spur slope S. about 400 ft. above last cor.
	62.70	On high bluff bears N. and S. Offset 4.57 chs. N. to avoid Wolf Creek Canon thence S. 89° 57' E. parallel to tangent and 4.57 chs. N. of it, on offset line.
	78.30	Wagon road, Cumbres to Chama, bears N. E. and S. W.
		Difference between measurements of 67.60 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 67.63 chs.
		By 2nd set 67.57 chs.; the mean of which is 67.60 chs. + 12.40 chs.=
9710 ft.	80.00	Comes in D. & R. G. R. R. cut N. of track.
		This offset line is 4.57 chs. N. of the tangent, true place for this cor. N. 27 lks.—Correction 420 lks. S. = S. 393 lks. from the tangent + 4.57 lks. = 850 lks. N. of the true place for this corner which falls in Wolf Creek Canon and is inaccessible. Therefore I establish a witness corner at this point 850 lks. N. of the true place for the corner.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for witness cor. for 142nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and W. C., 142 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable, in R. R. cut.
[fol. 168]		An aspen tree 5 ins. dia. bears N. 20° 40' E. 33 lks. dist. marked Colo., W. C. 142 M., B. T.
		An aspen tree 6 ins. dia. bears S. 86° 50' E. 102 lks. dist. marked W. C., N. M., 142 M., B. T.
		A cross on black volcanic rock bears S. 37° 20' E. 39 lks. dist. Rock 4 x 6 x 10 ft. above ground marked + N. M., W. C. 142 M., B. O.
		An aspen tree, 5 ins. dia. bears N. 73° 40' W. 110 lks. dist. marked W. C., Colo., 142 M., B. T.
		Land mountainous.
		Soil, clay loam, 3rd rate.
		Vegetation, grass; spruce, pine and aspen timber; oak and aspen brush.
		Alt. 9710 ft.
		Temp. 60°.

143rd Mile

Altitude	Chs.	
		S. 89° 56' E. on offset line parallel with the tangent.
	0.35	D. & R. G. R. R. track bears N. E. and S. W.
	1.00	Stadia measurement.
		Angle 2° +, Rod 9.20 single = 920 ft. × .9988 = 918.90 ft. + C. = 1.15 ft. = 920.05 ft. = 13.94 chs. + 1.00 ch. = 14.94 chs.
	8.00	Bottom of Wolf Creek Canon, about 20 ft. deep, stream 40 lks. wide, course S. W.; ascend.
	14.94	Stadia point, thence by tape measurement.
	25.00	Set back S. 4.57 chs. to the tangent line thence S. 89° 56' E. on the tangent to the parallel.
		Leave timber, bears N. W. and S. E.
	33.90	Spur slope N.
	54.00	Enter timber bears N. E. and S. W.
	75.00	Leave timber bears N. E. and S. W. Foot of Cumbres or Conejos Range bears N. E. and S. W.; ascend.
		Difference between measurements of 65.06 chs. by 2 sets of chainmen is 8 lks. position of middle point.
[fol. 169]		By 1st set 65.10 chs.
		By 2nd set 65.02 chs.; the mean of which is 65.06 chs. + 14.94 chs. =
9850 ft.	80.00	N. 37 lks. — Correction 441 lks. S. = S. 404 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 143rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 143 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A spruce tree 7 ins. dia. bears S. 32° 15' E. 46 lks. dist. marked N. M., 143 M., B. T.
		A spruce tree 7 ins. dia. bears S. 83° 15' W. 78 lks. dist. marked N. M., 143 M., B. T.
		No other trees within limits suitable for bearing trees.
		A point of black lava rock bears N. 79° E. about 12 chs. dist.
		Land, mountainous.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, grass; spruce and aspen timber; aspen, alder and willow brush.
		Alt. 9850 ft.
		Temp 66°.

144th Mile

Altitude	Chs.	
		S. 89° 55′ E. on the tangent to the parallel. Ascend steep rocky W. slope of mountain. Stadia measurement.
		Angle 20′ +, Rod 12.80 single = 1280 ft. × .8830 = 1130.24 ft. + C. = 1.08 ft. = 1131.32 ft. = 17.14 chs.
	17.14	Stadia point, thence by tape measurement, over rolling rocky hills.
10500 ft.	50.00	Summit of Conejos Range, bears N. and S. Alt. 10500 ft. Cumbres station on D. & R. G. R. R. at Cumbres Pass about 1½ miles N. Descend through scattering timber, with much dead and fallen timber.
[fol. 170]		Difference between measurements of 62.86 chs. by 2 sets of chainmen is 6 lks. position of middle point. By 1st set 62.89 chs. By 2nd set 62.83 chs.; the mean of which is 62.86 chs. + 17.14 chs. = N. 49 lks. — Correction 462 lks. S. = S. 413 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 144th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. an S. and 144 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. No trees within limits. This cor. stands on a little flat or basin. Land, mountainous. Soil, sand and clay, 3rd rate. Vegetation, grass; spruce and aspen timber; much dead and fallen timber. Alt. 10300 ft. Temp. 70°.

145th Mile

		S. 89° 55′ E. on the tangent to the parallel. Descending gradually.
	4.00	Stream 5 lks. wide, course N. E.; ascend.
	8.00	Enter timber bears N. W. and S. E.
	25.00	Top of spur slope N. 150 ft. above cor.; descend.
	46.00	Bottom of ravine 100 ft. deep, course N. W.; ascend.
	60.00	Top of spur slope N.; descend.

Altitude	Chs.	
	77.00	Stream 6 lks. wide, course N. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is
10000 ft.	80.00	N. 42 lks. — Correction 483 lks. S. = 421 lks. from the tangent.
[fol. 171]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 145 mile cor. A brass cap on top of the pipe has raised letters. Colo. on N., N. M. on S. and 145 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A spruce tree 16 ins. dia. bears N. 85° E. 152 lks. dist. marked Colo., 145 M., B. T.
		A spruce tree 12 ins. dia. bears S. 58° 45′ E. 37 lks. dist. marked N. M., 145 M., B. T.
		A spruce tree 10 ins. dia. bears S. 61¼° W. 236 lks. dist. marked N. M., 145 M., B. T.
		A spruce tree 10 ins. dia. bears N. 36¼° W. 96 lks. dist. marked Colo., 145 M., B. T.
		This cor. stands on E. bank of creek about 30 ft. above the water.
		Land, mountainous.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass, sage; spruce and aspen timber; and brush.
		Alt. 10000 ft.
		Temp. 70°.

146th Mile

		S. 89° 54′ E. on the tangent to the parallel. Ascend in spruce timber.
	25.00	Top of spur, about 150 ft. high slope N.
	38.00	Bottom of gulch, course N.; ascend.
	50.00	Top of spur 100 ft. high slope N.; descend.
	65.00	Leave timber bears N. and S.; descend E. slope.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is
9700 ft.	86.00	N. 76 lks.—Correction 504 lks. S. = S. 428 lks. from the tangent,

Altitude . Chs

Set an iron pipe 3 ins. dia. 4 ft long with flanges at the bottom 2 f. in the ground for 146th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 146 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

[fol 172]

Pits impracticable.
No trees within limits.
This cor. stands in a little hollow.
Land, mountainous.
Soil, sandy and rocky, 3rd rate.
Vegetation, grass, sage, scattering spruce and aspen timber, with some dead and fallen timber.
Alt. 9700 ft.
Temp. 65°.

July 16th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct, and in adjustment.

147th Mile

S. 89° 53' E. on the tangent to the parallel.
Descending gradually across little valley.

8.00 Stream 5 lks. wide, course N. E.; ascend.

9750 ft. 16.00 Top of rocky spur slope N. in scattering timber.
Descend along N. slope.

56.00 Foot of hills. Enter valley of the Pinos, bears N. W. and S. E. Leave timber bears N. W. and S. E.

Difference between measurements of 80.06 chs. by 2 sets of chainmen is 6 lks. position of middle point.
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is

9450 ft. 80.00 N. 92 lks.—Correction 525 lks. S. = S. 433 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 147th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 147 M. stamped in center. Dug pits 36 x 36 x 18 ins.

[fol. 173]

N. S., and E. of the cor. 6 ft. dist. The place for pit on W. side, a shallow pond, pit impracticable. Raised a mound of earth 5 ft. base 2 ft. high around the post.
A cliff of rock bears N. 25° E. about 1 mile dist.

Altitude	Chs.	
		A sharp point of rock bears N. 51° 45′ E. about 1 mile dist.
		This cor. stands on creek bottom about 6 chs. S. of Rio Los Pinos
		Land, mountainous.
		Soil, sandy, and clay loam, 2nd rate.
		Vegetation, grass, sage, scattering spruce and aspen.
		Alt. 9450 ft.
		Temp. 68°.

148th Mile

		S. 89° 53′ E. on the tangent to the parallel.
		Along creek bottom.
	60.00	Stream 5 lks. wide, course N. E.
	70.00	Foot of bluff bears N. E. and S. W.; ascend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.; the mean of which is
9569 ft.	80.00	No. 110 lks.—Correction 546 lks. S. = S. 436 lks. from the tangent.
		Set an iron pipe 3 ins. dia., 4 ft. long with flanges at the bottom 2 ft. in the ground for 148th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 148 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limits.
		This cor. stands on steep rocky N. W. slope.
		Land, mostly valley.
		Soil, sandy and rocky, 2nd rate.
[fol. 174]		Vegetation, grass and sage.
		Alt. 9500 ft.
		Temp. 70°.

149th Mile

		S. 89° 52′ E. on the tangent to the parallel.
		Ascend over steep broken rock.
		Stadia measurement.
		Angle 18° +. Rod 11.39 single = 1150 ft. × .9045 = 1040.18 ft. + C = 1.93 ft. = 1041.27 ft. = 15.77 chs.
	15.77	Stadia point on top of rock cliffs, about 350 ft. above creek bears N. E. and S. W. Thence by tape measurement along N. slope. Enter scattering timber bears N. E. and S. W.

Altitude	Chs.	
	68.00	Top of spur, slope N.
		Difference between measurements of 64.23 chs. by 2 sets of chainmen is 4 lks. position of middle point
		By 1st set 64.25 chs.
		By 2nd set 64.21 chs.; the mean of which is 64.23 chs. + 1.77 chs. =
9810 ft.	80.00	N. 129 lks. — Correction 567 lks. S. = S. 438 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 149th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 149 M. stamped in the center. Raised a mound of stone 2 ft. base 2 ft. high around the post.
		Pits impracticable.
		An aspen tree 6 ins. dia. bears N. 72½° E. 116 lks. dist. marked Colo., 149 M., B. T.
		An aspen tree 10 ins. dia. bears S. 24° E. 79 lks. dist. marked N. M., 149 M., B. T.
		An aspen tree 5 ins. dia. bears S. 62° W. 80 lks. dist. marked N. M., 149 M., B. T.
		An aspen tree 5 ins. dia. bears N. 51¼° W. 24 lks. dist. marked Colo., 149 M. B. T.
		Land, mountainous.
		Soil, rocky, clay loam, 3rd rate.
[fol. 175]		Vegetation, grass, sage, aspen and scattering spruce timber; aspen brush.
		Alt. 9810 ft.
		Temp. 70°.

150th Mile

		S. 89° 52' E. on the tangent to the parallel.
		Ascend gradually in aspen timber.
	3.50	Top of hill bears N. W. and S. E.; descend.
	30.00	Leave timber bears N. W. and S. E.
	55.00	On bluff bears N. W. and S. E.; descend.
9200 ft.	64.66	Rio Los Pinos, 60 lks. wide, course S. E. Alt. 9200 ft.
		Ascend along S. slope.
	75.00	Brooks 3 lks. wide, course S. W.; ascend steep.
	80.00	Comes on very steep W. slope in sliding rock.
		Impracticable to establish permanent cor. at this point.
		Land, mountainous.
		Soil, rocky, 3rd rate.
		Vegetation, grass, sage, scattering aspen timber; aspen brush.

151st Mile

Altitude	Chs.	
		S. 89° 51′ E. on the tangent to the parallel.
	5.70	D. & R. G. R. R. track bears N. and S. E.
	6.00	Perpendicular wall rock cutting about 30 ft. high.
		Difference between measurements of 87.00 chs. by 2 sets of chainmen is 16 lks. position of middle point
		By 1st set 87.08 chs.
		By 2nd set 86.92 chs.; the mean of which is 87.00 chs. — 70.00 chs. = 7.00 chs. on 151st mile.
9520 ft.	7.00	N. 152 lks. — Correction 590 lks. S. = S. 438 lks. from the tangent.
		Set an iron post 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 150th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 150.087 M.
[fol. 176]		stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A spruce tree 10 ins. dia. bears S. 11½ E. 83 lks. dist. marked 150.087 M., N. M., B. T.
		A spruce tree 18 ins. dia. bears N. 32° W. 55 lks. dist. marked Colo. 150.087 M., B. T.
		No other trees within limits suitable for bearing trees.
		The upper end of Tojtee Gorge about 1 mile S. E. Darling's 6th Astronomical station bears S. 1° W. 38.80 chs. dist. I destroyed this cor. and succeeded in finding and destroying all his corners from this point W. to the 191st mile cor. previously mentioned, except his 182nd, 189th and 190th mile corners, which I failed to find.
		Thence ascend through dense aspen brush.
10000 ft.	70.00	On top of high spur slope S. Alt. 10000 ft. descend.
		Difference between measurements of 73.00 chs. by 2 sets of chainmen is 12 lks., position of middle point
		By 1st set 73.06 chs.
		By 2nd set 72.94 chs.; the mean of which is 73.00 chs. + 7.00 chs. =
9950 ft.	80.00	N. 472 lks. — Correction 609 lks. S. — S. 437 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 151st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 151 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Altitude	Chs.	
		Pits unpracticable.
		An aspen tree 8 ins. dia. bears S. 11° E. 200 lks. dist. marked N. M., 151 M., B. T.
		An aspen tree 10 ins. dia. bears S. 15° W. 200 lks. dist. marked N. M., 151 M., B. T.
		No trees within limits on other side.
[fol. 177]		Land, mountainous.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, grass; aspen, scattering spruce timber; dense aspen brush.
		Alt. 9,950 ft.
		Temp. 70°.

July 17th, 1903.

On morning of Dec. 3rd, 1902, at 2h 31m A. M. l. m. t., having carefully adjusted the transit in all its parts at the 151st mile cor. I observe Polaris at Western elongation, and mark a point on the line so found on a plug driven in the ground N. of my station.

At 7h 50m A. M. Dec. 3rd, I lay off the azimuth of Polaris 1° 31.1′ to the East and mark a point in the true meridian on a plug driven in the ground N. of my station.

The magnetic bearing of said meridian is N. 13° 45′ W.

This gives the magnetic variation 13° 45′ E. I now lay off an angle 90° from the meridian, from the N. to the E. for the tangent to the parallel.

In these observations and the subsequent turning of angles the mean of four sights was used with telescope reversed at each sight.

July 18th, 1903.—I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

152nd Mile

		East on the tangent to the parallel.
		Descend through dense aspen brush.
	71.00	D. & R. G. R. R. bears N. and S.; about 10 chs. N. to Toltec section house.
9350 ft.	80.00	Comes in dense brush in deep ravine, about 600 ft. below last corner. I advance this corner.

Altitude	Chs.	
		Land, mountainous.
[fol. 178]		Soil, rocky, clay and sand, 3rd rate.
		Vegetation, grass; aspen timber; aspen and oak brush.

153rd Mile.

		S. 89° 59' E. on the tangent to the parallel.
		Descend in dense brush.
	1.00	Stream 5 lks. wide, course S. E.; ascend.
		Difference between measurements of 96.00 chs. by 2 sets of chainmen is 20 lks., position of middle point.
		By 1st set 96.10 chs.
		By 2nd set 95.96 chs.; the means of which is 96.00 chs.— 80.00 chs.= 16 chs. on 153rd mile.
9450 ft.	16.00	N. 1 lk.—Correction 634 lks. S.= S. 633 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 152nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N. M., on S. and 152.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		This cor. stands in S. side of D. & R. G. R. R. cut. A spruce 5 ins. dia. bears N. 43° 50' W. 160 lks. dist. marked Colo., 152 M., B. T.
		No other trees within limits suitable for bearing trees.
	16.25	Center of D. & R. G. R. R. track bears N. W. and S. E.; ascend in dense brush and scattering timber.
10000 ft.	36.00	Top of high bluff bears N. W. and S. E. Elevation 10,000 ft.
		Enter aspen timber; descend gradually.
		Difference between measurements of 64.00 chs. by 2 sets of chainmen is 14 lks., position of middle point.
		By 1st set 64.07 chs.
		By 2nd set 63.93 chs.; the mean of which is 64.00 chs. + 16.00 chs.=
9920 ft.	80.00	N. 3 lks.—Correction 651 lks. S.= S. 648 lks. from the tangent.
[fol. 179]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 153rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N. M. on S. and 153 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Altitude	Chs.	
		Pits impracticable.
		An aspen tree 6 ins. dia. bears 34½° E. 48 lks. dist. marked Colo., 153 M., B. T.
		An aspen tree 6 ins. dia. bears S. 72° E. 68 lks. dist. marked N. M., 153 M., B. T.
		An aspen tree 6 ins. dia. bears S. 2¼° W. 180 lks. dist. marked N. M., 153 M., B. T.
		An aspen tree 5 ins. dia. bears N. 73° W. 95 lks. dist. marked Colo., 153 M., B. T.
		Land, mountainous.
		Soil, clay loam, 3rd rate.
		Vegetation, grass; aspen, scattering spruce timber; aspen brush.
		Alt. 9,920 ft.
		Temp. 70°.

154th Mile

		S. 89° 59′ E. on the tangent to the parallel.
		Descending gradually through aspen timber.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks position of middle point
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.; the mean of which is
9850 ft.	80.00	N. 7 lks.—Correction 672 lks. S.=S. 665 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 154th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 154 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
[fol. 180]		Pits impracticable.
		This cor. stands among dead aspen poles, on gentle N. W. slope.
		An aspen tree 6 ins. dia. bears North 15 lks. dist. marked Colo., 154 M., B. T.
		An aspen tree 6 ins. dia. bears S. 54° 20′ W. 153 lks. dist. marked N. M., 154 M., B. T.
		No other tree within limit suitable for bearing tree.
		Land, sloping gently to the N. and N. W.
		Soil, clay loam, 3rd rate.
		Vegetation, aspen timber and brush
		Alt. 9,850 ft.
		Temp. 75°.

Altitude	Chs.	
		155th Mile
		S. 89° 58′ E. on the tangent to the paralled.
		Descending along N. slope in timber and brush.
	73.00	Bottom of ravine, course N.
	77.00	On ridge bears N. E. and S. W.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is
9650 ft.	80.00	N. 12 lks.—Correction 693 lks. S. = S. 681 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 155th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 155 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A yellow pine tree 24 ins. dia. bears N. 15° E. 161 lks. dist. marked Colo., 155 M., B. T.
		A spruce tree 24 ins. dia. bears S. 23½° W. 291 lks. dist. marked N. M., 155 M., B. T.
		No other trees within limit suitable for bearing trees.
[fol 181]		Land, mountainous.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, grass; aspen, scattering pine and spruce timber; aspen brush.
		Alt. 9,650 ft.
		Temp. 75°.

		156th Mile
		S. 89° 57′ E. on the tangent to the paralled.
		Descend over rolling hills, along N. slope through timber and brush.
9540 ft.	74.00	Top of ridge bears N. E. and S. W.; descend, leave timber, bears N. E. and S. W.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is
9440 ft.	80.00	N. 19 lks.—Correction 714 lks. S. = S. 695 lks. from the tangent.

Altitude Chs

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 156th mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N. M. on S. and 156 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
This cor. stands on open N. E. slope near head of little gulch that runs S. E.
A yellow pine tree 18 ins. dia. bears N. 64° 37' E. 167 lks. dist. marked Colo., 156 M. B. T.
A yellow pine tree 18 ins. dia. bears S. 35° E. 312 lks. dist. marked N. M., 156 M., B. T.
No other trees within limits.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, grass; spruce and pine and aspen timber, oak and aspen brush.
Alt. 9,440 ft.
Temp. 77.

July 18th, 1903.

[fol. 182] I examine and carefully adjust the transit, compare the steel tapes with the standard and find them of correct length.

157th Mile

S. 89° 57' E. on the tangent to the parallel.
Descend.

8.00 Bottom of ravine about 75 ft. below cor. course N. E.; ascend over N. slopes.

40.00 Top of spur, slope N. about 50 ft. high.

9160 ft. 72.00 Bottom of ravine, stream 2 lks. wide, course N. ascend.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point.

By 1st set 80.06 chs.

By 2nd set 79.94 chs., the mean of which is

9210 ft. 80.09 N. 27 lks.—Correction 735 lks. S.—S. 708 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 157th mile cor. A brass cap on top of the pipe has raised letters Colo. on N. N. M. on S. and 157 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Altitude	Chs	
		Pits impracticable
		This cor. stands in a little gap or saddle, on the top of a ridge that bears NE. and SW
		A pine tree 18 ins. dia. bears N. 44½ E. 74 lks. dist. marked Colo. 157 M., B. T.
		A pine tree 12 ins. dia. bears S. 10½ E. 173 lks. dist. marked N. M., 157 M., B. T.
		No other trees within limits.
		Land, mountainous.
		Soil, rocky, 3rd rate.
		Vegetation, grass, pine, spruce and aspen timber, oak and aspen brush.
		Alt. 9230 ft.
		Temp. 65°.

[fol. 183] 158th Mile

		S. 89° 56' E. on the tangent to the parallel. Ascending through brush and scattering timber.
	23.00	Bottom of dry ravine, 50 ft. deep, course N. E., ascend.
	36.00	Top of spur, slope N. E., descend.
	44.00	Bottom of ravine, 50 ft. deep, course N. E.
	50.00	Top of spur, about 50 ft. above gulch, slope N. E.
	72.00	Bottom of ravine, course N., water in head of it about ½ mile S. of line; ascend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 90 lks., position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs., the mean of which
9130 ft.	80.00	N. 37 lks.—Correction 750 lks. S. = S. 713 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom 2 ft. in the ground for 158th mile cor. Alibrass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 158 M. stamped in the center. Raised a mound of stone 6 ft. base 2 ft. high around the post.
		Pits impracticable.
		This cor. stands on W. slope about 15 ft. above bottom of ravine.
		A yellow pine tree 18 ins. dia. bears N. 17° E. 198 lks. dist. marked Colo., 158 M., B. T.
		A yellow pine tree 18 ins. dia. bears S. 37° E. 284 lks. dist. marked N. M., 158 M., B. T.
		A yellow pine tree 18 ins. dia. bears S. 71½ W. 73 lks. dist. marked N. M., 158 M., B. T.
		A yellow pine tree 18 ins. dia. bears N. 32° W. 198 lks. dist. marked Colo., 158 M., B. T.

Altitude	Chs.	
		Land, mountainous. Soil, sand and clay, rocky, 3rd rate. Vegetation, grass; scattering pine, spruce and aspen timber; oak and aspen brush.
[fol. 184]		Alt. 9200 ft. Temp. 75

159th Mile

		S. 89° 55' E. on the tangent to the parallel; ascend.
9350 ft.	24.00	Top of bluff bears N. W. and S. E. Lava rim about 220 ft. above the cor.
		Thence across high mesa, scattering timber.
9350 ft.	60.00	Top of wall, lava rim bears N. W. and S. E.; descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen = 14 lks, position of middle point
		By 1st set 80.07 chs.
		By 2nd set 79.93 chs., the mean of which is
9200 ft.	80.00	N. 49 lks.—Correction 777 lks. S. = S. 728 lk. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 159th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 159 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A yellow pine tree 16 ins. dia. bears S. 4° 10' E. 187 lks. dist. marked N. M., 159 M., B. T.
		A yellow pine tree 16 ins. dia. bears N. 0° 45' W. 353 lks. dist. marked Colo., 159 M., B. T.
		No other trees within limits suitable for bearing trees.
		Land, mountainous.
		Soil, sand and clay, rocky, 3rd rate.
		Vegetation, grass; scattering pine, spruce and aspen timber; oak and aspen brush.
		Alt. 9200 ft.
		Temp. 75°.

[fol. 185]

160th Mile

		S. 89° 55' E. on the tangent to the parallel. Along N. slope in dense brush and scattering timber.

Altitude	Chs	
9250 ft.	50.00	Top of wall lava rim bears N. E. and S. W. about 50 ft. above last corner, thence across lava mesa
	70.19	D. & R. G. R. R. track bears N. E. and S. W. about ¼ mile N. of Big Horn section house.
		Difference between measurements of 80.00 chs by 2 sets of chainmen is 16 lks. position of middle point
		By 1st set 80.08 chs.
		By 2nd set 79.92 chs., the mean of which is
9200 ft.	80.00	N. 62 lks.—Correction 798 lks. S. = S. 736 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 160th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 160 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limits.
		This corner stands on lava mesa, near center of parquette made by D. & R. G. R. R. to gain grade.
		Land, broken and rock.
		Soil, clay and volcanic ash, 3rd rate.
		Vegetation, soap-weed; scattering pine, spruce and aspen timber; and aspen brush.
		Alt. 9200 ft.
		Temp. 80°.

161st Mile

		S. 89° 34' E. on the tangent to the parallel. Descending gradually over lava mesa.
	10.08	Center of D. & R. G. R. R. track bears N. E. and S. W.
	37.00	Leave scattering timber, bears N. and S.
[fol. 186]		Difference between measurements of 80.00 chs by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs., the mean of which is
9050 ft.	80.00	N. 76 lks.—Correction 819 lks. S. = S. 743 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 161st mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 161 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.

Altitude	Chs.	
		W. edge of timber on peak bears N. 22½° W. about 5 miles dist. Sharp timbered peak bears E. 71° 20′ W. about 2 miles dist. Top of Ute Peak bears S. 78½° E. about 25 miles dist. Land, volcanic mesa. Soil, sand, clay, volcanic ash, 4th rate. Vegetation, soap-weed; scattering pine and pinon. Alt. 9050 ft. Temp. 75°.

July 19th, 1903.

I examine the instrument and compare the steel tapes with the standard, find all correct and in adjustment.

162nd Mile

		S. 89° 53′ E. on the tangent to the parallel. Descend gradually over mesa.
9000 ft.	22.00	Top of lava wall, or rim, bears N. E. and S. W. Leave mesa; descend, enter scattering pinon and cedar bears N. E. and S. W.
8660 ft.	48.00	Foot of slope dry gulch, course N. E. and about 300 ft. below top of bluff; ascend.
	49.00	Darling's 170th mile cor. bears S. 32.90 chs. dist., a lava stone 15 x 10 x 8 ins. set in a pile of rock,
[fol. 187]		marked C. on N., 170 on E., N. M. on S. and .68 W. I destroyed this corner.
		Ran West from this point.
		80.30 chs.—Darling's 171st mile cor. 10 lks. S. A lava stone 14 x 10 x 7 ins. in a pile of stone, marked C. on N., 171 on E., N. M. on S. and .68 on W. I destroyed this cor.
		Ran West.
		80.00 chs.—Failed to find Darling's 172nd mile cor. and failed to find any more of the Darling corners till I reach his 6th Astronomical Station, on his 182nd mile, W. of Toltec Gorge, previously described. I now run East from the site of Darling's 170th mile corner and make search at each mile, but fail to find any corners, till I reach his 165th mile cor., near our Astronomical Station No. 4,—a lava stone 14 x 10 x 8 ins. marks illegible.
	57.60	Wagon road, Antonito to Big Horn Station, bears N. E. and S. W.

Altitude	Chs.	
8650 ft.	60.00	Top of hill bears N. E. and S. W. Thence over gently rolling hills. Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks. position of middle point. By 1st set 80.08 chs. By 2nd set 79.92 chs.; the mean of which is
8650 ft.	80.00	N. 92 lks.—Correction 840 S. = S. 748 lks. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 162nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., . . M. on S. and 162 M. Stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. Land, mesa and rolling. Soil, sandy and volcanic ash, 3rd rate. Vegetation, grass, sage, soapweed; scattering cedar and pinon. [64 188] Alt. 8650 ft. Temp. 65°.

163rd Mile

S. 89° 53' E. on the tangent to the parallel.
Over gently rolling land.

	57.90	Center of D. & R. G. R. R. track bears N. 51° E. for about 20 chs., then curves to N. and S. 51° W. about 6 chs. then curves to the S.
		Difference between measurements of 80 chs. by 2 sets of chainmen is 10 lks., position of middle point.
		By 1st set 80.05 chs.
8420 ft.	80.00	By 2nd set 79.95 chs.; the mean of which is N. 110 lks.—Correction 861 lks. S. = S. 751 lks. from the tangent,
		Set temporary cor. See page 419.
		Land, rolling.
		Soil, sandy, 3rd rate.
		Vegetation, grass, scrub pinon, both N. and S. of this line.
		Alt. 8420 ft.
		Temp. 70°.

164th Mile

S. 89° 52' E. on the tangent to the parallel.
Descending gradually across little valley that bears N. E. and S. W.

Altitude	Chs.	
8400 ft.	64.00	Foot of bluff that bears N. E. and S. W. Leave valley, ascend.
	80.00	Comes on W. slope of bluff. I advance this cor. Land, mostly valley. Soil, sandy, 3rd rate. Vegetation, grass, sage and scattering pinon.

165th Mile

S. 89° 52' E. on the tangent to the parallel. Ascend.

	4.00	Brow of bluffs bears N. E. and S. W. Ascend gradually.
[fol. 189]		Difference between measurements of 88.00 chs. by 2 sets of chainmen is 10 lks., position of middle point. By 1st set 88.05 chs., By 2nd set 87.95 chs., the mean of which is 88.00 chs.,—80.00 chs. = 8.00 chs. on the 165th mile.
8500 ft.	8.00	N. 131 lks.—Correction 884 lks. S. = S. 753 lks. from the tangent. Set temporary cor. Alt. 8500 ft. Temp. 75°. Thence across lava mesa.
8500 ft.	26.00	E. edge of mesa bears N. E. and S. W. Descend.
	44.00	Foot of bluff about 250 ft. high bears N. E. and S. W.
	44.23	Wagon road bears N. 37° E. and S. 37° W. Descend gradually.
	44.50	Fence bears N. E. and S. W.
	47.15	Irrigating ditch, course N. E. Enter cultivated field bears N. E. and S. W. Difference between measurements of 72.00 chs. by 2 sets of chainmen is 6 lks. position of middle point. By 1st set 72.03 chs.; By 2nd set 71.97 chs.; the mean of which is 72.00 chs + 8.00 chs. =
8200 ft.	80.00	N. 150 lks.—Correction 903 lks. S. = S. 753 lks. from the tangent. Set temporary cor. This cor. stands in a cultivated field. Land, high table and valley. Soil, 2nd and 3rd rate. Vegetation, grass, sage and wheat, alfalfa and pease. Alt. 8200 ft. Temp. 80°.

Altitude	Chs.	
		166th Mile
[fol. 190]		S. 89° 54' E. on the tangent to the parallel. Across bottom land, through growing crops.
	17.60	Irrigating ditch 10 lks. wide, course N. E.
	40.00	A good house about 5 chs. N.
	65.00	Center of main street in Ortiz bears N. 25° W. and S. 25° E. about 10 chs. each way and jogs off to the E. at each end.
	67.00	S. W. cor. of Garcia's house, the largest house in Ortiz.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
8180 ft.	80.00	N. 172 lks.—Correction 924 lks. S. = S. 752 lks. from the tangent.
		Set temporary cor.
		This cor. stands in cultivated field.
		The point for this cor. was determined from the astronomical observations, and was located April 21st, 1903.
		Land, creek bottom.
		Land, gravelly loam, 2nd rate.
		Vegetation, cultivated crops, wheat, oats, corn, alfalfa pease and potatoes.
		Alt. 8180 ft.
		Temp. 80°.

July 20th, 1903.

On April 20th, I assembled the Surveying Corps at Antonito, Colorado.

April 21st proceed to Ortiz to our 4th Astronomical Station, where we left off work last December.

From the Astronomical observations made at this station on the nights of October 12, and 13th, 1902, I locate the 37th parallel of North Latitude and also locate a point on the boundary line within the limit of 3" of arc allowed by the Hon Commissioner, for the 166th mile cor.

I find the snow is still too deep on the Conejos and Navajo Ranges to admit making the required correction of the line from the 122nd cor. to this point.

[fol. 191] Therefore, that portion of the line was left till later in the season, as shown by the dates on the foregoing field notes.

Altitude	Chs.	
		April 22nd, 1903 at 5h 30m A. M. I. m. t. at the point for the 166th mile cor. I observe Polaris at Eastern elongation and mark a point in the line so determined on a pin driven in the ground N. of my station.
		At 6h 50m A. M. I. lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a pin driven in the ground north of my station.
		The magnetic bearing of the meridian is N. 13° 44′ W. This gives the magnetic variation 14° 44′ E.
		I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel. In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

167th Mile

		East on the tangent to the parallel.
		Along creek bottom and over cultivated land.
	33.27	W. edge of San Antonio Creek, 1 ch. wide, clear water, 2 ft. deep, course N. E.
	34.87	E. edge of creek bears N. E. and S. W.; bank 2½ ft. high, fringe of willow brush along creek.
	44.00	Point of lava hill from S. W.
	46.00	Mexican adobe about 1 ch. S.
	51.90	Our Astronomical station bears S. 26.90 chs. dist.
		The latitude of this station was found to be 36° 59′ 45.22″ = 22.64 chs. S. of true parallel. Our line is, therefore 4.26 chs. N. of the true parallel as determined by astronomical observations, but within the limits of 3″ of arc allowed by the Hon. Commissioner.
[fol. 192]		As this point comes in a cultivated field I advance the astronomical monument to the E. edge of it. (See page 421.)
8180 ft.	60.80	N. ½ lk. from the tangent.
		Set temporary astronomical monument.
		Leave cultivated land, bears N. and S.; ascend.
8260 ft.	64.14	Top of bluff on rimrock of black lava about 75 ft. high bears N. E. and S. W. Thence across lava mesa.
	77.90	Wagon road, bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.

Altitude	Ch.	
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.: the mean of which is
8260 ft.	80.00	N. .76 of a link from the tangent.
		Set temporary cor.
		Land, mesa and valley.
		Soil, gravelly loam and volcanic ash, 2nd and 4th rate.
		Vegetation, growing crops in valley; some grass and weeds on mesa.
		Alt. 8260 ft.
		Temp. 52°.

168th Mile

		S. 89° 59' E. on the tangent to the parallel.
		Over malpais or volcanic rock and sand.
	51.50	Darling's 164th mile cor. bears S. 29.00 chs. dist.
		A lava stone 16x10x8 ins. No mound of other witness.
		I destroy the marks.
		The Darling corners were found and destroyed from this point eastward to the foot of the Culebra Range.
		They consisted of lava stones from 16 to 24 ins. in length, other dimensions much the same as the 164th mile cor.
[fol. 193]		not witnessed in any way. They were generally well and distinctly marked.
	63.85	Wagon road, bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point,
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.: the mean of which is
8275 ft.	80.00	N. 3 lks. from the tangent,
		Set temporary cor.
		Land, lava mesa, gently rolling.
		Soil, sand and volcanic ash, 4th rate.
		Vegetation, a little grass and weeds, practically a desert.
		Alt. 8275 ft.
		Temp. 65°.

169th Mile

		S. 89° 59' E. on the tangent to the parallel
		Over volcanic mesa.

Altitude	Chs.	
	27.81	Center of D. & R. G. R. R. track bears N. and S. runs from Antonito to Santa Fe.
	70.00	Wagon road bears N. E. and S. W.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is
8250 ft.	80.00	N. 7 lks. from the tangent.
		Set temporary cor.
		Land, gently rolling, volcanic mesa.
		Soil, rocky and sandy, 4th rate.
		Vegetation, scanty, weeds and greasewood
		Alt. 8250 ft.
		Temp. 62°.

170th Mile

		S. 89° 58' E. on the tangent to the parallel.
	68.00	Hollow drains N. E., 30 ft. deep; ascend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.; the mean of which is
8200 ft	80.00	N. 12 lks. from the tangent.
[fol. 194]		Set temporary corner.
		Land, volcanic mesa.
		Soil, sandy and rocky, 4th rate.
		Vegetation, scanty, weeds and greasewood
		Alt. 8200 ft.
		Temp. 62°.

171st Mile

		S. 89° 57' E. on the tangent to the parallel.
		Over volcanic mesa.
	20.70	Wagon road, bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is
8120 ft.	80.00	N. 19 lks. from the tangent.
		Set temporary cor.
		Land, mesa.
		Soil, sandy and rocky, 4th rate.
		Vegetation, weeds and greasewood.
		Alt. 8120 ft.
		Temp. 66°.

Altitude	Chs.	
		172nd Mile
		S. 89° 57' E. on the tangent to the parallel. Over mesa.
	20.60	Wagon road bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs.; the mean of which is
8100 ft.	80.00	N. 27 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 172nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M., on S. and 172 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
[fol. 195]		No bearing.
		Land, nearly level, volcanic mesa.
		Vegetation, weeds and greasewood
		Alt. 8100 ft.
		Temp. 70°.
		173rd Mile
		S. 89° 56' E. on the tangent to the parallel.
		Over nearly level land.
		Difference between measurements of 80.03 chs. by 2 sets of chainmen is 2 lks. position of middle point,
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
8057 ft.	80.00	N. 37 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 18 ins. in the ground to bed rock for 173rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 173 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		Low peak S. end of pinon hills bears N. 5° W. about 2 miles dist.
		Top of San Antonio Mountain bears S. 31° W.
		Land, nearly level, volcanic mesa.
		Soil, rocky and sandy, 4th rate.
		Vegetation, weeds and greasewood.
		Alt. 8075 ft.
		Temp. 70°.

Altitude	Chs.	
		174th Mile
		S. 89° 55′ E. on the tangent to the parallel.
		Descend over gently rolling land:
	2.00	Bottom of hollow 15 ft. deep, drains N. E.; ascend.
		They were nearly all lying on the ground,
	28.00	Top of ridge about 30 ft. high, bears N. E. and S. W.
		Descend gradually,
[fol. 196]		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
8100 ft.	80.00	N. 49 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 174th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 174 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		Top of Ute Peak bears S. 70° 20′ E.
		Top of San Antonio Mountain bears S. 35° 10′ W.
		Land, gently rolling mesa.
		Soil, rocky and sandy, 4th rate.
		Vegetation, weeds and greasewood.
		Alt. 8100 ft.
		Temp. 68°.
		175th Mile
		S. 89° 55′ E. on the tangent to the parallel.
		Over gently rolling mesa.
	42.40	Wagon road, bears N. W. and S. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
7980 ft.	80.00	N. 62 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 18 ins. in the ground to bed rock for 175th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 175 M. stamped in the center.

Altitude	Chs.	
		Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
[fol. 197]		Top of San Antonio Mountain bears S. 38° 50' W.
		Top of Ute Peak bears S. 68° 45' E.
		Land, nearly level mesa.
		Soil, rocky and sandy, 4th rate.
		Vegetation, scanty weeds and greasewood.
		Alt. 7980 ft.
		Temp. 68°.

April 22nd, 1903.

176th Mile

I examine the instrument and compare the steel tapes with the standard, find the instrument in perfect adjustment and the tapes of correct length.

		S. 89° 54' E. on the tangent to the parallel.
		Descend over gently rolling mesa.
	11.00	Draw, drains N. Irrigating ditch now dry, 1 ch. N., course N. W. to N. E.
	57.58	Wagon road bears N. and S.
	65.15	Top of ridge about 30 ft. high, bears N. W. and S. E.
		Descend.
	72.60	Irrigating ditch, now dry, at foot of ridge, course S. E.
		Thence across flat.
		Difference between measurement of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.
7950 ft.	80.00	N. 75 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 12 ins. in the ground to bed rock, for 176th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 176 M. stamped in the center.
		Raised a mound of stone 6 ft. base 3 ft. high around the post. Pits impracticable.
		No bearings.
		Land, gently rolling mesa.
[fol. 198]		Soil, rocky and sandy, 4th rate.
		Vegetation, weeds and greasewood.
		Alt. 7950 ft.
		Temp. 58°.

Altitude	Chs.	
		177th Mile
		S. 89° 53' E. on the tangent to the parallel.
		Over gentle rolling mesa.
	79.00	Foot of low ridge bears N. E. and S. W. ascend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs., the mean of which is 80.00 chs.
8000 ft.	80.00	N. 29 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock, for 177th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 177 M. stamped in the center. Raised a mound of stone 6 ft. base, 3 ft. high around the post. Pits impracticable.
		Top of San Antonio Mountain bears S. 44½ W.
		Low peak S. end of pinon hills bears N. 69½ W.
		Top of Ute peak bears S. 65½ E.
		About 2 miles N. to foot of pinon hills.
		Land, lava mesa.
		Soil, volcanic ash and sand, 4th rate.
		Vegetation, scanty salt sage, grass, weeds and greasewood.
		Alt. 8000 ft.
		Temp. 62°
		178th Mile
		S. 89° 53' E. on the tangent to the parallel.
		Over nearly level mesa.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point.
[fol. 199]		By 1st set 80.01 chs.
		By 2nd set 79.99 chs., the mean of which is 80.00 chs.
7950 ft.	80.00	N. 110 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 178th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. 178 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

Altitude	Chs	
		Pits impracticable.
		Low peak, S. end of pinon hills bears N. 73° W.
		Top of San Antonio Mountain bears S. 47½° W.
		Land, nearly level mesa.
		Soil, sand and volcanic ash, 4th rate.
		Vegetation, scanty, grass, weeds, salt sage and greasewood.
		Alt. 7950 ft.
		Temp. 70°.

179th Mile

	S. 89° 52' E. on the tangent to the parallel. **Descend.**
3.75	Bottom of draw drains N. E., ascend, leave mesa, bears N. E. and S. W.
4.00	Irrigation ditch, now dry, course N. E.
5.00	Top of spur, slope N. W.
	Bottom of gulch, dry, course N. W.
10.00	Foot of hill, bears N. W. and S. E., ascend.
29.00	Top of spur, slope S., descend gradually.
40.00	Head of draw, drains N. E.
	Ascend hill bears N. E. and S. W.
	Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.
	By 1st set 80.02 chs.
	By 2nd set 79.98 chs., the mean of which is 80.00 chs.
8180 ft. 80.00	N. 129 lks. from the tangent.
[fol. 200]	Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 179th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S., and 179 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post.
	Pits impracticable.
	This corner stands on point of spur, slope N.
	No bearings.
	Land, rolling.
	Soil, sandy, 4th rate.
	Vegetation, scanty, grass, weeds and greasewood.
	Alt. 8180 ft.
	Temp. 70°.

180th Mile

	S. 89° 52' E. on the tangent to the parallel.
	Over rolling hills; descending.
10.00	In hollow drains N.; ascend.
21.00	Top of spur about 5 ft. high, slope N.; descend.

Altitude	Chs.	
	58.00	Bottom of ravine 50 ft. deep, course N. W.; ascend
8200 ft	61.50	Top of ridge or gap or saddle. Peak 100 ft. higher about 10 chs. S. W. and peak about the same height about 20 chs. N.; descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs., mean of which is 80.00 chs.
8150 ft	80.00	N. 150 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 180th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 180 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
[fol. 201]		No bearings.
		Land, rolling hills.
		Soil, sandy and rocky, 4th rate.
		Vegetation, salt sage, cactus and greasewood.
		Alt. 8150 ft.
		Temp. 72

181st Mile.

		S. 89° 51' E. on the tangent to the parallel. Ascend over broken rock.
8200 ft	37.00	Lava ridge bears N. E. and S. W.; descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is 80.00 chs.
8100 ft.	80.00	N. 172 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 181st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 181 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		This cor. stands at foot of small black butte, the top of which is about 10 chs. N.
		No bearings.
		Land, rolling.
		Soil, rocky and sandy, 4th rate.

Azimuth Chs

Vegetation, salt sage, cactus and greasewood
Alt. 8100 ft
Temp. 72°

182nd Mile

S. 89° 30' E. on the tangent to the parallel.
Descending gradually.
[fol. 202] Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks.; position of middle point.
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
8000 ft. 80.00 N. 196 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 12 ins. in the ground to bed rock, for 182nd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 182 stamped in the center. Raised a mound of stone 5 ft. base, 3 ft. high around the post.
Pits impracticable.
Top of little black butte bears N. 87½° W. about one mile dist.
Ute Peak bears S. 41° E.
Top of San Antonio Mountain bears S. 55° W.
Land sloping E. and N. E.
Soil, sandy, 4th rate.
Vegetation, salt sage, cactus and greasewood
Alt. 8000 ft.
Temp. 72°

183rd Mile

S. 89° 30' E. on the tangent to the parallel. Descending gradually.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point.
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; mean of which is 80.00 chs.
7920 ft. 80.00 N. 224 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 183rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 183 M stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
[fol. 203] Pits impracticable.

Altitude	Chs.	
		Ute Peak bears S. 32° E.
		Top of San Antonio Mt. bears S. 59° 45′ W.
		Land, sloping gently E.
		Soil, very sandy, 4th rate.
		Vegetation, salt sage and greasewood.
		Alt. 7900 ft.
		Temp. 76°.

184th mile

S. 89° 49′ E. on the tangent to the parallel. Descending gradually.

7825 ft.	40.20	On top of wall, brink of canon of Rio Grande, bears N. and SE.
		Difference between measurements of 40.20 chs. by 2 sets of chainmen is nothing; the mean is 40.20 chs.
	40.20	Stadia measurement from this point
		Angle 0°. Rod 9.20 double=1840 ft.+C.=1.15 ft.=1841.15 ft.=27.89 chs.+40.20 chs.=
	68.09	chs
	46.00	Foot of wall about 125 ft. high, bears N. and SE.
	50.00	Rio Grande River, 2 chs. wide, water 3 ft. deep, course SE.
7700 ft.	62.00	Foot of wall of canon bears N. and S.
7825 ft.	65.90	Top of wall about 125 ft. high, bears NE. and S.
	68.09	Stadia point, thence by tape measurement, over nearly level land.
7825 ft.	80.00	N. 247 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom 2 ft. in the ground, for 184th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 184 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		E. peak of Sierra Blanca bears N. 18° 10′ E.
		Ute Peak S. 24° E.
[fol. 204]		Top of San Antonio Mt. bears S. 58° 20′ W.
		Land, mesa and canon.
		Vegetation, greasewood and cactus, fringe of willow in canon.
		Alt. 7825 ft.
		Temp. 70°.

April 23rd, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct this morning.

Altitude	Chs.	
		185th mile
		S. 89° 48' E. on the tangent to the parallel, over gently rolling valley land.
7830 ft	35.60	Top of ridge bears NW. and SE. about 30 ft. above last corner; descend.
	56.32	Wagon road, bears NW. and SE. from the Rio Grande bridge about 6 miles N. to Taos, N. M.
	75.00	Enter creek bottom, bears NE. and SW.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.
		By 1st set 80.02 chs.
		By 2nd set 7 9.98 chs.; the mean of which is 80.00 chs.
7800 ft.	80.00	N. 275 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 185th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 185 M. stamped in the center. Dug pits 36x36x18 ins. N. S. E. and W. of cor. 6 ft. dist. Raised a mound of earth 3 ft. base around the post.
		This cor. stands on creek bottom.
		San Antonio Mt. bears S. 61° W.
		Ute Peak bears S. 11° E.
		Land, rolling and creek bottom.
		Soil, sandy, 3rd rate and 4th rate.
[fol. 205]		Vegetation, scanty, grass, sage and rabbit brush.
		Alt. 7800 ft.
		Temp. 70°.
		186th Mile
		S. 89° 48' E. on the tangent to the parallel. Across creek bottom.
7790 ft.	10.32	Costilla River 1 ch. wide, muddy water, about 6 ins. deep, course SW.
	24.50	Wagon road bears NE. and SW.; ascend gradually.
7850 ft.	74.00	Top of bluff about 20 ft. high bears NE. and SW.
		Descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point.

Altitude	Chs.	
		By 1st set 80.03 chs.
		By 2nd set, 79.97 chs.; the mean of which is 80.00 chs.
7825 ft.	80.00	N. 305 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 186th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 186 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of cor 6 ft. dist. and raised a mound of earth 3 ft. base 2 ft. high around the post.
		No bearings.
		This cor. stands at foot of bluff about 12 ft. high, bears NE. and SW.
		Alt. 7825 ft.
		Temp. 72°.

187th Mile

		S. 89° 47′ E. on the tangent to the parallel, over nearly level land.
		Difference between measurements of 80.00 chs by 2 sets of chainmen is nothing, the mean is 80.00 chs.
7850 ft.	80.00	N. 337 lks. from the tangent.
[fol. 206]		Set an iron pipe 3 ins. dia. 4 ft. long with flang at the bottom 2 ft. in the ground for 187th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 187 M. stamped in the center. Dug Pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base, 2 ft. high around the post.
		Ute Peak bears S. 17° 10′ W.
		Land, nearly level.
		Soil, gravelly, 3rd rate.
		Vegetation, grass and sage.
		Alt. 7850 ft.
		Temp. 76°.

188th Mile

		S. 89° 46′ E. on the tangent to the parallel.
	2.90	Wagon road bears NE. and SW.
	47.65	Wagon road bears N. and S.

Altitude	Chs.	
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
7870 ft.	80.00	N. 370 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom 2 ft. in the ground for 188th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 188 M. stamped in the center. Dug pits 36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A red peak in the pinion hills bears N. 60° W.
		Ute Peak bears S. 29° W.
		Land, nearly level.
		Soil, gravelly, 3rd rate
		Vegetation, grass and sage.
		Alt. 7870 ft.
		Temp. 76°.

[fol. 207] 189th Mile

S. 89° 46' E. on the tangent to the parallel
Over nearly level land.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point.
By 1st set 80.02 chs.;
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

7900 ft. 80.00 N. 404 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom, 2 ft. in the ground for 189th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 189 M stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist., Raised a mound of stone 5 ft. base 2 ft. high around the post.
Red Peak bears N. 62° 15' W.
Ute Peak bears S. 37½° W. Chefolo Peak bears S. 15½° W.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage
Alt. 7900 ft.
Temp. 76°.

Altitude	Chs.	
		190th Mile
		S., 89° 45′ E. on the tangent to the parallel.
		Over nearly level land.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point.
		By 1st set 70.01 chs.
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
7900 ft.	80.00	N. 440 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 190th mile cor. A brass cap on the top of the pipe has raised letters Co on N., N. M. on S. and 190 M.
[fol. 208]		stamped in the center. Dug pits 36 x 36 x 18 ins. dia. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		East peak of the Sierra Blanca bears N. 12 35′ E.
		Ute Peak bears S. 45½° W.
		Chefolo Peak bears S. 18½° W.
		Land, nearly level.
		Soil, very gravelly, 3rd rate.
		Vegetation, grass and sage.
		Alt. 7900 ft.
		Temp. 72°.

		191st Mile
		S. 89° 44′ E. on the tangent to the parallel.
		Over nearly level land.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
7860 ft.	80.00	N. 477 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 191st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 191 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.

Altitude . . Chs.

Sierra Blanca (East Peak) bears N. 10° 35′ E.
Red Peak in pinon hills bears N. 66° 35′ W.
Chefolo Peak bears S. 21° W.
Church spire in Costilla bears S. 73° 25′ E.
Land, nearly level.
Soil, gravelly, 3rd rate.
Vegetation, grass and sage.
Alt. 7860 ft.
Temp. 65°.

[fol. 209] I carefully adjust the transit in all its parts.

April 24th, 1903.

At the 191st mile cor. April 25th, 1903 at 5h 18m A. M. l. m. t. I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground 10 chs. N. of my station.

At 7 h A. M., I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.

The magnetic bearing of the meridian is N. 13 10′ W.

This gives the magnetic declination 13° 10′ E.

I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations, and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

I compare the steel tapes with the standard and I find them of correct length.

192nd Mile

East on the tangent to the parallel.
Over nearly level land.
12.80 Wagon road bears N. E. and S. W.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point
By 1st set 80.03 chs.
By 2nd set 79.97 chs.; the mean of which is 80.00 chs.

Altitude	Chs.	
7859 ft.	80.00	N. .76 of a link from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 192nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 192 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mount of earth, 5 ft. base 2 ft. high around post.
[fol. 210]		East peak Sierra Blanca, bears N. 9° 35' E. Red peak in pinon hills, S. W. of Rio Grande bridge bears N. 68° W. Chefolo Peak bears S. 24° 10' W. Church spire in Costilla bears S. 65° 10' E. about 2 miles dist. Land, nearly level. Soil, gravelly, 3rd rate. Vegetation, grass and sage. Alt. 7850 ft. Temp. 56°.

193rd Mile

S. 89° 59' E. on the tangent to the parallel, over nearly level land.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.

By 1st set 80.02 chs.

By 2nd set 79.98 chs.; the mean of which is

7906 ft.	80.00	N. 3 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 193rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 193 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mount of earth 5 ft. base, 2 ft. high around the post.
[fol. 211]		East peak Sierra Blanca bears N. 9° 15' S. Ute Peak bears S. 60½° W. Church spire in Costilla bears S. 45½° E. about a mile dist. Land, nearly level. Soil, gravelly, 3rd rate. Vegetation, grass and sage. Alt. 7,900 ft. Temp. 62°.

Altitude Chs.

194th Mile

S. 89° 50′ E. on the tangent to the parallel.

21.00 Wagon road bears N. E. and S. W.

29.55 Irrigation ditch, course N.

30.00 Pole fence bears N. and S.; enter cultivated fields bears N. and S.

61.48 W. side of Mexican adobe house in village of La Costilla about ½ mile North of the church. Line strikes house about 10 ft. N. of the S. end.

68.00 Street bears N. W. and S. E.

74.00 W. bank of La Costilla River, bears N. 10° E. and S. 10° W. 4 ft. high, stream 150 lks. wide, 6 ins. deep, muddy water swift current, course N. E.

78.00 E. bank about 3 ft. high, bears N. and S.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point.

By 1st set 80.04 chs.

By 2nd set 79.96 chs.; the mean of which is 80.00 chs.

7950 ft. 80.00 N. 7 lks. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 194th mile cor. A brass cap on top of the pipe has raised letters Colo. on N.; N. M. on S. and 194 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of stone 5 ft. base 2 ft. high around the post.

This cor. stands on right bank of Costilla River by wire fence, at west edge of cultivated field.

A cottonwood tree 30 ins. dia. bears N. 78° E. 292 lks. dist. marked Colo., 194 M., B. T.

A cottonwood tree 26 ins. dia. bears S. 22° E. 322 lks. dist. marked N. M., 194 M., B. T.

fol. 212 No other trees within limit suitable for bearing trees.

Church spire in Costilla bears S. 5¼° W. about ½ mile dist.

Land, nearly level.

Soil, gravelly, 3rd rate.

Vegetation, grass, sage and cultivated crops.

A few cottonwood trees along E. side of river.

Alt. 7950 ft.

Temp. 64°.

Altitude	Chs.	
		195th Mile
		S. 89° 58′ E. on the tangent to the parallel, across river bottom. Enter cultivated field.
	2.50	Irrigating ditch, course N.
	3.00	Narrow line of willow brush bears N. E. and S. W.
	6.00	Leave brush, enter cultivated field. Bears N. E. and S. W.
	79.90	Brook 2 lks. wide, course N. E.
		Difference between measurment of 80.00 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
8000 ft.	80.00	N. 12 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 195th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 195 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist.
		Raised a mount of earth 5 ft. base 2 ft. high around the post.
		West pit comes in brook. Impracticable.
		This cor. stands on right bank of stream.
		No bearings.
		Land, sloping gradually toward river.
		Soil, gravelly, 3rd rate.
[fol. 213]		Vegetation, cultivated crops.
		Alt. 8000 ft.
		Temp. 60°.

		196th Mile
		S. 89° 57′ E. on the tangent to the parallel. Ascending gradually.
	7.50	Leave cultivated land, bears N. E. and S. W.
	10.90	Wire fence bears N. E. and S. W.
8020 ft.	12.00	Wagon road, bears N. E. and S. W.
		Foot of hills bear N. E. and S. W.; ascend.
		Difference between measurements of 20.30 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 20.31 chs.
		By 2nd set 20.29 chs.; the mean of which is 20.30 chs.
	20.30	On bench bears N. E. and S. W.

Altitude	Chs.	
		Stadia measurement from this point. Angle 6 +. Rod 12.50 single = 1250 ft. × 9891.38 ft. + C. = 1.14 ft. = 12357.52 ft. = 18.75 chs. + 20.30 chs. = 39.05 chs.
	39.05	Stadia point on bench bears N. and S. Stadia measurement. Angle 9° + Rod 7.65 single = 765 ft. × .9755 = 746.25 ft. + C. = 1.13 ft. = 747.39 ft. = 11.32 chs. + 39.05 chs. = 50.37 chs.
	50.37	Stadia point on bench, bears N. and S. Enter pinon timber, bears N. and S. Stadia measurement. Angle 11° +. Rod 11.29 double = 2258 ft. × .9636 = 2175.81 ft. + C. = 1.13 ft. = 2176.94 ft. = 32.98 chs. + 83.25 chs. 80. — 80 chs. = 3.35 chs. on 197th mile.
	80.00	Comes on steep W. slope of lava wall. Impracticable to establish the cor. at this point. Land, rough and broken. Soil, rocky, and sandy, 4th rate. Vegetation, grass, sage and pinon timber.

197th Mile

[fol. 214]		S. 89° 57' E. on the tangent to the parallel. Ascend.
	3.35	On top of lava rim rock bears N. and S. Stadia point, thence by tape measurement.
8550 ft.	4.00	N. 20 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 196th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 196.05 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post. Pits impracticable. A pinon tree 7 ins. dia. bears N. 34½° E. 23 lks. dist. marked Colo. 196.05 M., B. T. A pinon tree 7 ins. dia. bears S. 66½° E. 102 lks. dist. marked N. M. 196.05 M., B. T. A cedar tree 8 ins. dia. bears S. 7¼° W. 78 lks. lks. ddist. marked N. M., 196.05 M., B. T. A cedar tree 8 ins. dia. bears N. 81½° W. 48 lks. dist. marked N. M., 196.05 M., B. T. Alt. 8550 ft. Temp. 55°. Thence over top of lava hill.
	20.00	Descend gradually, slope S. E.

Altitude	Chs	
	31.00	Leave timber bears N. and S. Enter heavy sage brush.
	32.00	Wagon road bears N. W. and S. E.
	79.60	Wagon road, bears N. E. and S. W.
		Difference between measurements of 79.60 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 79.63 chs.
		By 2nd set 79.57 chs.; the mean of which is 79.60 chs. + 1.00 chs. = 80.60 chs.
8500 ft	80.60	N. 27 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 18 ins. in the ground to bed rock for 197th mile cor. A brass cap on the top of pipe has raised letters Colo. on N., N. M. on S. and 197 M. stamped in the center. Raised a mound of stone, 6 ft. base, 2½ ft. high around the post. Pits impracticable.
[fol. 245]		First peak on main range N. of the line bears N. 71° 20' E.
		A sharp timbered peak bears S. 6° 25' W. Land, mountainous.
		Soil, rocky, clay and and, 3rd rate.
		Vegetation, sage, cedar and pinion.
		Alt. 8500 ft.
		Temp. 55°
		S. 89° 56' E. on the tangent to the parallel. Descending.
	7.30	Dry ravine, course S. about 50 ft. deep; ascend
	12.00	Top of rocky spur, about 50 ft. high, slope S. E.
	31.00	On spur, slope S. E.; descend. Enter scattering pinion.
	17.00	Foot of hills, leave timber. Enter Arroyo Seco valley bears N. E. and S. W.
	64.40	Wagon road, bears N. E. and S. W.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs., the mean of which is 80.00 chs.
8450 ft	80.60	N. 37 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 198th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 198 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S.,

Altitude Chs

E. and W. of the cor. 6 ft. dist. Raised a mound of earth, 5 ft. base 2 ft. high around the post.
Sharp peak of main range bears N. 70½° E.
Timbered peak bears S. 16¼° W.
Ute Peak bears S. 71° W.
Land, rolling.
Soil, sandy, 3rd rate.
[fol. 216] Vegetation, grass, sage and scattering pinon.
1 Alt. 8450 ft.
Temp. 48°

April 25th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct, and in adjustment.

199th Mile

S. 89° 55' E. on the tangent to the parallel. Over gently rolling land.
44 11 Wagon road, bears N. E. and S. W.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.
By 1st set 80.02 chs.
By 2nd set 79.98 chs; the mean of which is 80.00 chs.
8500 ft. 80.00 N. 14 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 199th mile cor. A brass cap on the top of the pipe has raised letters Cole on N., N. M. on S. and 199 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. and raised a mound of earth 5 ft. base 2 ft. high around the post.
Sharp timbered peak bears S. 26° W.
Peak on main range N. of line bears N. 69½° E.
Land, gently rolling.
Soil, sand and clay, 3rd rate.
Vegetation, grass and sage.
Alt. 8500 ft.
Temp. 45°.

200th Mile

S. 89° 55' E. on the tangent to the parallel.
66.97 Wagon road bears N. E. and S. W.

Altitude	Chs.	
		Difference between measurements of 80.00 chs.
[fol. 217]		by 2 sets of chainmen is nothing, the mean of which is 80.00 chs.
8500 ft.	80.00	N. 14 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 200th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 200 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		East oak of Sierra Blanca bears N. 0° 45' W.
		Small cone in valley bears N. 5¼° W. about 3 miles dist.
		Sharp timbered peak bears S. 31¼° W.
		Land, gently rolling.
		Soil, sand and clay, 3rd rate.
		Vegetation, grass and sage.
		Alt. 8500 ft.
		Temp. 52°

201st Mile

		S. 89° 54' E. on the tangent to the parallel.
	37.19	Gusch. stream 3 lks. wide, course N.
8550 ft.	61.06	Foot of hills, leave valley, bears N. E. and S. W. ascend, on irrigated meadow S. of line.
		Mexican house about 20 chs. S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks. position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.96 chs.; the mean of which is 80.00 chs.
8650 ft.	80.00	N. 76 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 201st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 201 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S.,
[fol. 218]		E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		Small cone in valley bears N. 23½° W.
		East peak Sierra Blanca bears N. 2½° W.
		Ute Peak bears S. 74° 45' W.
		Land, gently rolling.
		Soil, sand, clay, 3rd rate.
		Vegetation, grass and sage.
		Alt. 8650 ft.
		Temp. 60°.

Altitude	Chs	
		202nd Mile
		S. 89° 53′ E. on the tangent to the parallel.
8700 ft.	44.00	Foot of mountains, Culebra range, bears N. and S. Ascend.
	55.00	A pile of stone, but no legible marks, which I take to be Darling's 139th mile cor., bears S. 24.00 chs. from the tangent. I find no Darling corners E., of here until I reach his 117th mile cor. Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point.
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs., the mean of which is 80.00 chs.
8800 ft.	80.00	N. 92 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 202nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 202 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		Ute Peak bears S. 75½° W.
		Small cone in valley bears N. 37° 45′ W. about 5 miles dist.
		East peak of Sierra Blanca bears N. 4° W. Land, mountainous.
		Soil, clay loam, 3rd rate.
[fol. 229]		Vegetation, grass and sage.
		Alt. 8,800 ft.
		Temp. 55

		203rd Mile
		S. 89° 53′ E. on the tangent to the parallel.
		Ascend along N. W. slope.
	21.00	Enter oak, willow and aspen brush; and aspen timber bears N. W. and S.
	79.75	Dry ravine 15 ft. deep, course N.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 80.06 chs., the mean of which is 80.00 chs.
8850 ft.	80.00	N. 110 lks. from the tangent.

Altitude Chs.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 203rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 203 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
A yellow pine tree 36 ins. dia. bears N. 28½ E. 19 lks. dist. marked Colo. 203 M., B. T.
An aspen tree 7in. dia. bears S. 41½° E. 17 lks. dist. marked N. M., 203 M., B. T.
An aspen tree 6 ins. dia. bears S. 49½° W. 60 lks. dist. marked N. M., 203 M., B. T.
A balsam fir tree 10 ins. dia. bears N. 33½ W. 55 lks. dist. marked Colo., 203 M., B. T.
Land, mountainous.
Soil, clay loam, 3rd rate.
Vegetation, scattering pine and aspen timber; oak, aspen and willow brush.
Alt. 8,850 ft.
Temp. 55°.

April 26th, 1903.

[fol. 220]

From the 203rd mile cor. the line was run over the mountain range as a random, owing to the snow being too deep to set the permanent corners.
At 217 miles 3.55 chs., I intersect a meridian line from the 5th Astronomical station at 32.44 chs. N. of said station
The latitude of this station as determined by astronomical observations, made on the nights of October 21st, 22nd and 23rd, 1902; is 36° 35.95" or 36.8d chs., South of the true parallel.
Our offset for this point is 19 lks. N. of the tangent, which would place the boundary line as projected from the W. 4.21 chs. S. of the true parallel (inside the limit) but as this line has been run from the 203rd mile as a random line, I make the offset from the tangent at our 217th mile cor. 271 lks. N. of the tangent, and locate the point for the 217th mile cor. 35.15 chs. N. of the Astronomical station and 169 lks. S. of the 37th parallel, as determined by astronomical observations.
This will amount to a correction of 18 lks. to the mile to the N. from the 203rd mile. I return and make this correction later in the season when the snow has gone, as will be seen by the dates given.

Altitude	Chs.	
		July 7th, 1903, I examine the transit, compare the steel tapes with the standard and find them all correct and in adjustment.

204th Mile

S. 89° 52′ E. on the tangent to the parallel.
Ascend along N. slope in timber and brush.

42.00 Stream 6 lks. wide, course N. W.; ascend W. slope.

56.12 Top of spur slope S.; ascend gradually.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point.

By 1st set 80.05 chs.

[fol. 221] By 2nd set 79.95 chs.; the mean of which is 80.00 chs.

9300 ft. 80.00 N. 129 lks. + Correction 18 lks. N. = 147 lks. N. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 204th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 204 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

This cor. stands at foot of a rock-slide on N. slope; a small lake about 20 chs. N.

An aspen tree 10 ins. dia. bears N. 40½° E. 49 lks. dist. marked Colo., 204 M., B. T.

An aspen tree, 8 ins. dia. bears S. 55½° E. 47 lks. dist. marked N. M., 204 M., B. T.

An aspen tree 8 ins. dia. bears S. 49½° W. 22 lks. dist. marked N. M., 204 M., B. T.

An aspen tree 8 ins. dia. bears N. 28° W. 22 lks. dist. marked Colo., 204 M., B. T.

Land, mountainous.

Soil, rocky, clay, 3rd rate.

Vegetation, spruce and aspen timber; oak and aspen brush.

Alt. 9300 ft.

Temp. 77°.

205th Mile.

S. 89° 52′ E. on the tangent to the parallel.
Ascend steep N. W. slope.

Altitude	Chs.	
9800 ft.	24.88	Top of sharp spur, slope N.
		Thence by stadia measurement.
		Angle 5° +. Rod 13.00 double = 2,600 ft. × 9924 = 2,580.24 ft. + C. = 1.14 ft. = 2,581.38 ft. = 39.50 chs. + 24.88 chs. = 64.38 chs.
9000 ft.	55.00	Bottom of canon about 800 ft. deep; S. branch of the Calavera River, stream 10 lks. wide, course N. W.; ascend.
	54.38	Stadia point on spur, slope N. W.
[fol. 222]		Thence by tape measurement, ascend very steep N slope.
		Difference between measurements of 40.50 chs. by 2 sets of chainmen is 6 lks, position of middle point,
		By 1st set 40.53 chs.
		By 2nd set 40.47 chs.; the mean of which is 40.50 chs. + 39.50 chs. = 80.00 chs.
10400 ft.	80.00	N. 150 lks. + Correction 36 lks. N. = 186 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 205th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 205 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		This cor. stands on steep N. slope.
		A spruce tree 6 ins. dia. bears N. 85° E. 30 lks. dist. marked Colo., 205 M., B. T.
		An aspen tree 6 ins. dia. bears S. 53½° E. 24 lks. dist. marked N. M., 205 M., B. T.
		A spruce tree 10 ins. dia. bears S. 58° W. 84 lks. dist. marked N. M., 205 M. B. T.
		A spruce tree 8 ins. dia. bears N. 31° W. 52 lks. dist. marked Colo., 205 M., B. T.
		Land, mountainous, rough and broken.
		Soil, rocky, 4th rate.
		Vegetation, spruce and aspen timber, spruce and aspen brush.
		Alt. 10,400 ft.
		Temp. 80°.

206th Mile

S. 89° 51′ E. on the tangent to the parallel.
Ascend through timber and brush.

14.00	Top of spur, slope S. W.; ascend.
41.00	Top of bluff, bears N. E. and S. W.

Altitude	Chs.	
	75.00	Leave timber, bears N. and S. Ascend steep W. slope over broken rock.
11500 ft. [fol. 223]	80.00	Comes on steep W. slope among broken rock Impracticable to establish corner at this point. Land, mountainous. Soil, rocky, 4th rate. Vegetation, spruce and aspen, timber and brush. Alt. 11,500 ft. Temp. 70°.
		S. 89° 50′ E. on the tangent to the parallel. Ascend very steep over broken rock. Difference between measurements of 108.00 chs. by 2 sets of chainmen is 20 lks. position of middle point: By 1st set 108.10 chs. By 2nd set 107.90 chs.; the mean of which is 108.00 chs. — 80.00 chs. = 28.00 chs.
12000 ft.	28.00	N. 180 lks. + Correction N. 60 lks. = 240 lks. N. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 10 ins. in broken rock, to bed rock for 206th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 206.35 M. stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post. Pits impracticable. East peak Sierra Blanca bears N. 9° 35′ W. Ute Peak bears S. 79° 10′ W. Sharp peak on spur bears S. 64° 20′ W. about 2 miles dist. This cor. stands on shoulder of mountain, a bare rock spur, slope W. above timber line. Alt. 12,000 ft. Temp. 70°. Ascend along spur. Difference between measurements of 29.00 chs. by 2 sets of chainmen is 4 lks., position of middle point. By 1st set 29.02 chs. By 2nd set 28.98 chs.; the mean of which is 29.00 chs + 28.00 chs. = 57.00 chs.
	57.00	Stadia measurements from this point.
		[fol. 224] Angle 18 +. Rod 10.50 double = 2,100 ft. × .9045 = 1,899.45 ft. + C. = 1.09 ft. = 1,900.54 ft. = 28.79 chs. + 57.00 chs. = 85.79 chs. − 80.00 chs. = 5.79 chs. on the 208th mile.
	80.00	Comes on W. slope of mountain near top.

Altitude	Chs.	
		I advance this cor. to the top.
		Land, mountainous.
		Soil, none, all rock.
		Vegetation, moss and lichen.

208th Mile

		S. 89° 50′ E. on the tangent to the parallel.
		Ascend over broken rock.
	5.79	Stadia measurement, thence by tape measurement.
12700 ft.	8.00	N. 199 lks. + Correction 74 lks. N. = 273 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in broken rock, for 207th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 207.1 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		High peak on range bears N. 44° 45′ E.
		Monument on lower peak, appears to be shaft of stone, 8 or 10 ft. high, bears N. 56° E. about 5 miles dist.
		East peak Sierra Blanca bears N. 10½° W.
		Ute Peak in San Luis bears S. 79° 30′ W.
		This cor. stands on top of high spur of the Culebra Range that bears N. and S. at this point, but the trend of the range is N. E. and S. W. This spur is much higher than the "divide," further E. and above timber line.
		Alt. 12,700 ft.
		Temp. 60°.
		Descend gradually.
12650 ft.	17.87	Brow of mountain bears N. and S. On snow bank about 30 ft. deep.
[fol. 225]		Stadia measurement from this point.
		Angle 16° —. Rod 9.04 double = 1808 ft. × .9240 = 1670.59 ft. + C. = 1.10 ft. = 1671.69 ft. = 25.33 chs. + 17.87 chs. = 43.20 chs.
	43.20	Stadia point on spur, slope N. E. Enter timber; descend.
		Stadia measurement.
		Angle 17° —. Rod 6.70 double = 1340 ft. × .9145 = 1225.43 ft. + C. = 1.10 ft. = 1226.53 ft. = 18.58 chs. + 43.20 chs. = 61.78 chs.
	50.00	Hollow drains S. E.; ascend.
	61.78	Stadia point on spur, slope S. W.

Altitude	Chs.	
		Descend steep bluff.
		Stadia measurement.
		Angle 14° —, Rod 11.00 single = 1100 ft. × .9415 = 1035.65 ft. + C. = 1.11 ft. = 1036.76 ft. = 15.71 + 61.78 chs. = 77.49 chs.
	68.00	Foot of bluff bears N. E. and S. W.; dry ravine, course N. E.
		Ascend.
	72.00	On flat spur, slope N. E.; descend in dead fallen timber.
	77.49	Stadia point, thence by tape measurement.
11060 ft.	80.00	N. 211 lks. + Correction, 90 lks. N. = 311 lks. N. from the tangent.
		Set an iron pipe, 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 208th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 208 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A spruce tree 5 ins. dia. bears N. 51½° E. 40 lks. dist. marked Colo., 208 M., B. T.
		A spruce tree 4 ins. dia. bears S. 29½° E. 22 lks. dist. marked N. M., 208 M., B. T.
		A spruce tree 5 ins. dia. bears S. 15° W. 16 lks. dist. marked N. M., 208 M., B. T.
		A spruce tree 8 ins. dia. bears N. 28° W. 61 lks. dist. marked Colo., 208 M., B. T.
[fol. 226]		This cor. stands on N. E. slope in dead and fallen timber, and young spruce.
		Land, mountainous.
		Soil, rocky, 4th rate.
		Vegetation, spruce, timber and brush.
		Alt. 11000 ft.
		Temp. 65°.

July 7th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

July 6th, 1903.

209th Mile

		S. 89° 49′ E. on the tangent to the parallel.
		Descend in timber and brush.
10800 ft.	12.00	Brow of bluff bears N. E. and S. W.; descend.

Altitude	Chs	
	17.00	Enter heavy spruce timber, bears N. and S.
10000 ft.	80.00	Comes in ravine, stream 3 lks. wide, course N. I advance this cor.
		Land, mountainous.
		Soil, rocky. 4th rate.
		Vegetation, spruce and aspen timber and brush.

210th Mile

S. 89° 48' E. on the tangent to the parallel. Ascend.

Difference between measurements of 95.20 chs. by 2 sets of chainmen is 14 lks., position of middle point:

By 1st set 95.27 chs.

By 2nd set 95.13 chs.; the mean of which is 95.20 chs. — 80.00 chs. = 15.20 chs.

10050 ft.	15.20	N. 252 lks. + Correction = 112 lks. = 3.64 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 209th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 209.19 M. stamped in the center.
[fol. 227]		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A spruce tree 6 ins. dia. bears N. 65½° E. 12 lks. dist. marked Colo., 209.19 M., B. T.
		A spruce tree 6 ins. dia. bears S. 65½° E. 72 lks. dist. marked N. M., 209.19 M., B. T.
		An aspen tree 5 ins. dia. bears S. 44½° W. 94 lks. dist. marked N. M., 209.19 M., B. T.
		An aspen tree 5 ins. dia. bears N. 79° W. 70 lks. dist. marked Colo., 209.19 M., B. T.
		This cor. stands on the top of a glacial moraine, bears N. and S.
		Alt. 10050 ft.
		Temp. 70°.
		Descend.
	20.00	Foot of bluff about 200 ft. high bears N. and S.
9850 ft.	22.00	N. fork of the Costilla River, 10 lks. wide, course S. E.
		Ascend.
	37.60	Top of spur, slope S. about 100 ft. above creek, thence along S. slope.
	37.00	Stream 6 lks. wide, course S.; ascend along S. slope over aspen covered hills.

Altitude Chs

Difference between measurements of 64.80 chs. 2 sets of chainmen is 8 lks. position of middle point.

By 1st set 64.84 chs.

By 2nd set 64.76 chs., the mean of which is 64.80 chs. + 15.20 chs. = 80.00 chs.

[10000 ft. 80.00 N. 27½ lks. + Correction 126 lks. N = 401 lks. N. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long, with flanges at the bottom 2 ft. in the ground for 210th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M., on S. and 210 M. stamped in the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.

Pits impracticable.

[fol. 228] An aspen tree 5 ins. dia. bears S. 75° E. 32 lks. dist. marked N. M., 210 M., B. T.

An aspen tree 6 ins. dia. bears N. 28½° W. 193 lks. dist. marked Colo., 210 M., B. T.

No other trees within limit suitable for bearing trees.

This cor. stands on rocky S. W. slope in aspen brush.

Land, mountainous.

Soil, rocky, clay loam, 3rd rate.

Vegetation, grass, aspen and willow brush; and scattering spruce and aspen timber.

Alt. 10000 ft.

Temp. 72°.

211th Mile

S. 89° 48' E. on the tangent to the parallel.

Ascend along S. slope in aspen and willow brush.

18.00 Stream 4 lks. wide, course S. W.

45.00 Stream 3 lks. wide, course S. W.

[10800 ft. 69.00 Top of high rocky spur, slope S., descend.

[10500 ft. 79.00 Stream 4 lks. wide, in ravine, course S. W., ascend.

80.00 Comes in dense brush.

I advance this cor.

Land mountainous.

Soil, rocky, clay loam, 3rd rate.

Vegetation, grass, aspen and willow brush, scattering spruce and aspen timber.

Altitude	Chs.	212th Mile
		S. 89° 47′ E. on the tangent to the parallel. Ascend through timber and brush.
		Difference between measurements of 84.00 chs. by 2 sets of chainmen is 16 lks.; position of middle point.
		By 1st set 84.08 chs.
		By 2nd set 83.92 chs.; the mean of which is 84.00 chs. — 80.00 chs. = 4.00 chs.
11100 ft.	4.00	N. 306 lks. + Correction 145 lks. N. = 451 lks. N. from the tangent.
[fol. 229]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 211th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 211.05 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A spruce tree 5 ins. dia. bears N. 43½° E. 21 lks. dist. marked Colo., 211.05 M., B. T.
		A spruce tree 6 ins. dia. bears S. 54¼° E. 125 lks. dist. marked N. M., 211.05 M., B. T.
		A spruce tree 12 ins. dia. bears S. 54½° W. 79 lks. dist. marked N. M., 211.05 M., B. T.
		A spruce tree 6 ins. dia. bears N. 74° W. 105 lks. dist. marked Colo., 211.05 M., B. T.
		This cor. stands on W. slope in timber.
		Alt. 11100 ft.
		Temp. 72°.
		Ascend.
11200 ft.	17.41	Top of Divide between the waters of the Rio Grande and those that flow eastward, bears N. for ¼ mile, then N. W. and S. for 60 chs., then S. W. Alt. 11200 ft.
		Descend through heavy spruce timber.
	30.00	Leave heavy spruce timber and enter aspen and scattering spruce timber, bears N. and S.
	75.00	Foot of slope, bears N. E. and S. W. Enter dense willow brush, bears N. E. and S. W.
		Difference between measurements of 76.00 chs. by 2 sets of chainmen is 10 lks., position of middle point.
		By 1st set 76.05 chs.
		By 2nd set 75.95 chs.; the mean of which is 76.00 chs. + 4.00 chs. = 80.00 chs.
10500 ft.	80.00	Comes in dense willow brush, ground swampy, impracticable to establish corner at this point.
		Land, mountainous.
		Soil, clay loam, 3rd rate.

Altitude Chs.

Vegetation, spruce and aspen timber; aspen and willow brush.

July 6th, 1903.

[fol. 230]

At the point for the 212th mile cor., as located May 4th, 1903, I observe Polaris at eastern elongation, at 4h 39m A. M. Lmt. May 5th, 1903, and mark a point in the line so found on a plug driven in the ground X. of my station. At 7h A. M. May 5th, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.
The magnetic bearing of the meridian is N. 13° 25′ W.
This gives the magnetic variation, 13° 27′ E.
I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

May 5th, 1903.

July 5th, 1903.

I examine the transit, compare the steel tapes with the standard and find all correct and in adjustment.

213th Mile

East on the tangent to the parallel.

22.00 Leave willow brush and swampy ground, bears N. E. and S. W.
Difference between measurements of 26.00 chs. by 2 sets of chainmen is 2 lks., position of middle point.
By 1st set 26.01 chs.
By 2nd set 25.99 chs.; the mean of which is 26.00 chs.

16500 ft. 26.00 N. .2 of a link + Correction 167 lks. N. = 167.2 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 212th mile cor. A brass cap on the pipe has raised letters Colo. on N., N. M. on S. and 212325 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.

[fol. 231]

Altitude	Chs	
		Pits impracticable.
		An aspen tree 5 ins. dia. bears S. 7° E. 125 lks. dist. marked N. M., 212.325 M., B. T.
		An aspen tree 5 ins. dia. bears S. 5½° W. 142 lks. dist. marked N. M., 212.325 M., B. T. No other trees within limits suitable for bearing trees.
		High peak on range bears N. 4½° W.
		Monument (appears to be shaft of stone, 8 or 10 ft. high) on low peak bears N. 34½° W. about 4 miles dist.
		Alt. 10,500 ft.
		Temp. 65°.
	28.00	Enter dense willow brush, bears N. E. and S. W.
	29.00	Stream 2 lks. wide, course N. E.; ascend.
	30.00	Leave willow, enter aspen brush, bears N. E. and S. W.
10700 ft.	55.00	Top of ridge bears N. E. and S. W.; descend.
	80.00	Comes in dense brush on steep S. E. slope.
		I advance this cor.
		Land, mountainous.
		Soil, clay loam, 3rd rate.
		Vegetation, grass, dense aspen brush, scattering spruce and aspen timber.

214th Mile

		S. 89° 30' E. on the tangent to the parallel.
9900 ft.	13.00	Bottom of deep ravine, course N. E.; ascend.
		Difference between measurements of 70.00 chs. by 2 sets of chainmen is 12 lks. position of middle point.
		By 1st set 70.06 chs.
		By 2nd set 69.94 chs.; the mean of which is 70.00 chs. + 26.00 chs. = 96.00 chs. — 80.00 chs. = 46.00 chs.
9950 ft. [fol. 232]	16.00	N. 1 lk. + Correction 183 lks. N. = 184 lks. N. from the tangent.
		Set an iron pipe 3 in. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 213th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 214.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A spruce tree 12 ins. dia. bears N. 43½° E. 47 lks. dist. marked Colo. 214.2 M., B. T.
		A spruce tree 12 ins. dia. bears S. 9° E. 35 lks. dist. marked N. M., 214.2 M., B. T.
		A spruce tree 12 ins. dia. bears S. 27½° W. 68

Altitude	Chs.	
		lks. dist. marked N. M., 213.2 M., B. T.
		An aspen tree 5 ins. dia. bears N. 37½° W. 41 lks. dist. marked Colo., 213.2 M., B. T.
		This cor. stands on N. slope in timber and brush.
		Alt. 9,950 ft.
		Temp. 70°.
		Thence along N. slope; descending.
		Difference between measurements of 64.00 chs. by 2 sets of chainmen is 14 lks. position of middle point.
		By 1st set 64.07 chs.
		By 2nd set 63.93 chs.; the mean of which is 64.00 chs. + 16.00 chs. = 80.00 chs.
9400 ft.	80.00	N. 3 lks. + Correction 198 lks. N. = 201 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 214th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 214 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A spruce tree 12 ins. dia. bears N. 37½° E. 42 lks. dist. marked Colo. 214 M., B. T.
[fol. 233]		An aspen tree 5 ins. dia. bears S. 32½° E. 73 lks. dist. marked N. M., 214 M., B. T.
		An aspen tree 5 ins. dia. bears S. 42½° W. 54 lks. dist. marked N. M., 214 M., B. T.
		A spruce tree 12 ins. dia. bears N. 58½° W. 154 lks. dist. marked Colo., 214 M., B. T.
		This cor. stands on N. slope in thick aspen.
		Land, mountainous.
		Soil, clay loam, 3rd rate.
		Vegetation, spruce and aspen timber; dense aspen brush.
		Alt. 9,400 ft.
		Temp. 70°.

215th Mile

		S. 89° 59' E. on the tangent to the parallel. Descend.
	4.00	Stadia measurement.
		Angle 3° +. Rod 13.00 double = 2600 ft. × .9891 = 2571.66 ft. + C. = 1.14 ft. = 2572.80 ft. = 38.98 chs. + 4.00 chs. = 42.98 chs.
9000 ft.	20.00	N. fork of Vermejo or Canadian River, 20 lks. wide, course S. E. in canon about 400 ft. deep; ascend.

Altitude	Chs.	
	42.98	Stadia point, thence by tape measurement; ascend along S. W. slope.
9500 ft.	52.00	Top of high spur, slope S. W.; descend.
	6.00	Bottom of dry gulch, course S. W.
	67.00	Darling's 117th mile cor., a conglomerate stone 16 x 10 x 5 ins. above ground, bears S. 32 chs. dist.
		I destroy this cor., and the marks on the bearing trees.
		This is the first cor. of Darling's I have been able to find this side of the mountain range.
	77.00	Dry gulch, course S. W.; ascend.
		Difference between measurements of 41.02 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 41.05 chs.
[fol. 234]		By 2nd set 40.99 chs.; the mean of which is 41.02 chs. + 38.98 chs. = 80.00 chs.
9300 ft.	80.00	N. 7 lks. + Correction 216 lks. N. = N. 233 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 215th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 215 M stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limits suitable for bearing trees.
		Land, mountainous.
		Soil, clay and sand, 3rd rate.
		Vegetation, oak and aspen brush; scattering, spruce and aspen timber.
		Alt. 9,300 ft.
		Temp. 72°.

216th Mile

S. 89° 58' E. on the tangent to the parallel. Difference between measurements of 23.00 chs. by 2 sets of chainmen is 2 lks. position of middle point.

By 1st set 23.01 chs.

By 2nd set 22.99; the mean of which is 23.00 chs.

9400 ft.	23.00	Top of ridge bears N. E. and S. W.; descend. Stadia measurement from this point.
		Ang'e 9° — Rod 10.20 double = 2040 ft. × .9755 = 1990.62 ft. + C. = 1.13 ft. = 1991.75 ft. = 30.17 chs. + 23.00 chs. = 53.17 chs.

Altitude	Chs.	
	53.17	Stadia point on bench bears N. E. and S. W.; descend.
		Stadia measurement.
		Angle 16° +, Rod 9.10 double = 1820 ft. × .9240 = 1681.68 ft. + C. = 1.10 ft. = 1682.78 ft. = 25.49 chs. + 53.17 chs. = 78.66 chs.
9000 ft.	60.00	Bottom of canon, stream 15 lks. wide, course S. W.
[fol. 235]		Ascend.
	78.66	Stadia point, thence by tape measurement.
9500 ft.	80.00	N. 12 lks. + Correction 234 lks. N. = 246 lks. N. from the tangent.
		Set temporary cor.
		Adjusted under instructions dated Sept. 9th, 1903.
		See page 417.
		Land, mountainous.
		Soil, rocky, 4th rate.
		Vegetation, grass, pine, aspen, willow and sage brush.
		Alt. 9500 ft.
		Temp. 65°.

217th Mile.

		S. 89° 57' E. on the tangent to the parallel.
		Ascend over rocks and through brush.
9650 ft.	3.00	Top of high, rocky ridge, bears N. 70° E. and S. 70° W.
		Descend by stadia measurement.
		Angle 15° —, Rod 8.50 double = 1700 ft. × .9330 = 1585.10 ft. + C. = 1.11 ft. = 1587.21 ft. = 24.04 chs. + 3.00 chs. = 27.04 chs.
	10.00	Foot of rocks, bears N. W. and S. E.
	27.04	Stadia point, thence by tape measurement, along S. slope.
		Descend.
		Difference between measurement of 52.96 chs. by 2 sets of chainmen is 8 lks. position of middle point,
		By 1st set 53.00 chs.
		By 2nd set 52.92 chs.; the mean of which is 52.96 chs. + 27.04 chs. = 80.00 chs.
8700 ft.	80.00	N. 19 lks. + Correction 252 lks. = 271 lks. N. from the tangent.
		Set temporary cor.
		The point located May 7th, 1903.
		See page 417.

Altitude	Chs.	
		Land, mountainous.
		Soil, sand and clay, 3rd rate.
		[fol. 236] Vegetation, grass, pine timber; oak and aspen brush.
		Alt. 8700 ft.
		Temp. 65°.

July 5th, 1903.

Having carefully adjusted the transit in all its parts. At the point for the 217th mile cor. May 8th, 1903, at 4h 27m A. M. l. m. t. I observe Polaris at eastern elongation, and mark a point in the line so determined on a plug driven in the ground N. of my station. At 7h A. M. May 8th, 1903, I lay off the azimuth of Polaris 1°30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 13° 30′ W.

This gives the magnetic declination 13° 30′ E.

I now lay off an angle of 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.

218th Mile

East on the tangent to the parallel.

Descending in pine timber.

	12.00	Leave timber bears N. E. and S. W.
	14.87	Wagon road from Costilla to Trinidad, via San Francisco Pass, bears N. E. and S. W.
	17.65	Stream 3 lks. wide, course S. W.
8650 ft.	18.97	N. .2 of a link from the tangent.

Set temporary astronomical monument, See page 478.

The line from this point was run through to the 6th astronomical station, on the 275th mile, where the falling was found to be 18.66 chs. N. [fol. 237] of the 37th parallel, as determined by astronomical observations on nights of Oct. 27th, 29th and 30th, 1902. This being outside of the limit of 3″ of arc allowed by the Hon. Commissioner the line was adjusted by applying the correction of 24.7 lks. per mile to the south, to bring it within said limit.

Altitude	Chs.	
	26.00	Foot of hill, leave small valley, bears N. E. and S. W.; ascend.
	66.32	On top of spur, slope N. E.; ascend along N. slope.
9500 ft.	79.54	Top of ridge bears N. E. and S. W., about 850 ft. above valley.
		Descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
9490 ft.	80.00	N. .76 of a link,—Correction 18 lks. S. = 17.24 lks. S. from the tangent.
		Set temporary 218th mile cor.
		Land, mountainous.
		Soil, rocky, 3rd rate.
		Vegetation, pine timber; oak and aspen brush.
		Alt. 9490 ft.
		Temp. 70°.
		July 4th, 1903.
		N. B.—This line was corrected when we returned over it from the East, and the corners set on the true line, which accounts for the dates running contrary to the course of the line.

219th Mile

		S. 89° 59′ E. on the tangent to the parallel. Descending through scatering pine timber.
	43.00	Stadia point, thence by stadia measurement.
		Level, Rod 13.00 double = 2600 ft. + C. = 1.15 ft. = 2601.15 ft. = 39.41 chs. + 43.00 chs. =
[fol. 238]		84.41 chs. — 80.00 chs. = 2.41 chs. on 220th mile.
9000 ft.	75.00	Stream 3 lks. wide, course S. in ravine about 500 ft. deep; ascend.
	80.00	Comes on very steep N. slope in dense brush. I advance this cor.
		Land, mountainous.
		Soil, clay loam, and rocky, 3rd rate.
		Vegetation, pine and pinon timber, oak and aspen brush.

220th Mile

		S. 89° 59′ E. on the tangent to the parallel.
	2.41	Stadia point, thence by tape measurement.

Altitude	Chs.	
		Ascend steep.
	23.50	Top of ridge bears N. E. and S. W.
		Difference between measurements of 64.59 chs by 2 sets of chainmen is 10 lks., position of middle point.
		By 1st set 64.64 chs.
		By 2nd set 64.54 chs.; the mean of which is 64.59 chs. + 39.41 stadia measurement = 104.00 chs. —80.00 chs. = 24.00 chs. on 220th mile
9500 ft.	24.00	N. 4 lks. — Correction of 50 lks. S. = 46 lks. S. from the tangent.
		Set temporary 219th mile cor. stamped 219.3 M. Alt. 9500 ft.
		Temp. 50°.
		Descend.
9100 ft.	65.00	Bottom of dry ravine, course S. W.; ascend.
	78.20	Timber road, bears N. E. and S. W.
	78.40	Wire fence bears N. E. and S. W. on low hills, bears N. E. and S. W.
9300 ft.	80.00	N. 7 lks. — Correction 67 lks. S. = 60 lks. South from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 220th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 220 M. stamped in the center. Raised a mound of stone
[fol. 239]		5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A yellow pine tree 12 ins. dia. bears N. 26° E. 168 lks. dist. marked Colo., 220 M., B. T.
		An aspen tree 8 ins. dia. bears S. 24¼° E. 48 lks. dist. marked N. M., 220 M., B. T.
		A yellow pine tree 16 ins. dia. bears 33½° W. 48 lks. dist. marked N. M. 220 M., B. T.
		An aspen tree 8 ins. dia. bears [illegible] 39° W. 87 lks. dist. marked Colo., 220 M., B. T.
		This cor. stands on flat where timber has been cut for saw mill.
		Land, rolling and broken.
		Soil, clay loam, 3rd rate.
		Vegetation, pine and aspen timber and oak and aspen brush.
		Alt. 9,300 ft.
		Temp. 80°.

221st Mile

S. 89° 58' E. on the tangent to the parallel.

Through timber and brush, and over gently rolling ground.

Altitude	Chs.	
	26.00	Top of flat ridge bears N. E. and S. W. Descend gradually along N. slope.
	25.00	Ruins of old saw-mill in gulch about 10 chs. N.
	27.79	Bottom of dry ravine, course S. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point:
		By 1st set 80.07 chs.
		By 2nd set 79.93 chs.; the mean of which is
9050 ft.		80.00 chs.
9050 ft.	80.00	N. 12 lks.—Correction 92 lks. S.=80. lks. South from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 221st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. and S. and 221 M.
[fol. 240]		stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 12 ins. dia. bears S. 74½° 225 lks. dist. marked N. M., 221 M., B. T.
		A pine tree 16 ins. dia. bears N. 12½° W. 323 lks. dist. marked Colo., 221 M., B. T.
		No other trees within limits suitablt for bearing trees.
		Land, rolling.
		Soil, clay loam, 3rd rate.
		Vegetation, pine, pinon and aspen timber; and oak and aspen brush.
		Alt. 9,050 ft.
		Temp. 80°.

222nd Mile

S. 89° 57′ E. on the tangent to the parallel.

.10	Road to old saw-mill, bears S. E. and N. W.; ascend.
8.90	Top of ridge bears N. E. and S. W. about 100 ft. high.
13.76	Thence by stadia measurement.
	Level, Rod 16.16 single=1016 ft.+C.=1.15 ft. =1617.15 ft.=15.41 chs.+13.76 chs.=29.17 chs.
18.00	Dry gulch, course S. W. about 100 ft. deep; ascend.
29.17	Stadia point, on spur, slope S.
	Angle 2°+, 12.73 Rod, single=1273 ft.×.9988 =1271.41 ft.+C.=1.15 ft.=1272.62 ft.=19.28 chs.+48.45 chs.
48.45	**Stadia point,**

Altitude	Chs.	
		Angle 3° +. Rad 11.00 ft. single=1100 ft. × .9973=1097.03 ft. + C.=1.15 ft.=1098.18 ft.= 16.64 chs. + 48.45 chs.=65.09 chs.
	54.00	Bottom of dry ravine, course S. W. about 100 ft. deep.
	65.09	Stadia point, thence by tape measurement.
	68.00	Top of spur, slope S. 100 ft. above bottom of ravine.
9000 ft. [fol. 241]	80.00	Comes in dense aspen timber and brush. I advance this cor. Land, rough and broken. Soil, clay loam, 3rd rate. Vegetation, pine, pinon and aspen timber; oak and aspen brush.

223rd Mile

S. 89° 57′ E. on the tangent to the parallel.

	15.00	Wagon road from Tercio to Vermejo bears N. and S.
	35.00	Leave timber, bears N. E. and S. W.
		Difference between measurements of 68.67 chs. by 2 sets of chainmen is 6 lks. position of middle point.
		By 1st set 68.70 chs.
		By 2nd set 68.64 chs.; the mean of which is 68.67 chs. + Stadia 51.33 chs.=120.00 chs.—80.00 chs. =40.00 chs. on 223rd mile.
9500 ft.	40.00	N. 23 lks.—Correction 120 lks. S.=106 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 22nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 22.5 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		East Spanish Peak bears N. 11° 20′ E.
		Vermejo Peak bears S. 44° 05′ W.
		A pine tree 18 ins. dia. bears N. 55° W. 166 lks. dist. marked Colo., 222.5 M., B. T.
		A pine tree 14 ins. dia. bears N. 16° W. 234 lks. dist. marked Colo., 222.5 M., B. T.
		A pine tree 16 ins. dia. bears S. 50° E. 428 lks. dist. marked N. M., 222.5 M., B. T.
		This cor. stands on top of round hill.
		Alt. 9500 ft.
		Temp. 82°.
		Vegetation, pine, spruce and aspen timber; oak and aspen brush.

Altitude	Chs.	
	39.60	Enter pine and aspen timber, bears N. and S.
[fol. 242]	80.00	Comes on steep E. slope, in dense brush.
		I advance this cor.
		Land, rough and broken.
		Soil, clay loam, 3rd rate.
		Vegetation, pine, spruce and aspen timber; oak, and aspen brush.

224th Mile

S. 89° 56' E. on the tangent to the parallel.
Ascend along steep N. slope.

21.00 Top of high ridge bears S. E. and S. W.
Difference between measurements of 66.00 chs. by 2 sets of chainmen is 4 lks. position of middle point.
By 1st set 66.02 chs.
By 2nd set 65.98 chs.; the mean of which is 66.00 chs.—40.00 chs. from last cor. to 80.60 chs. point=26.00 chs. on the 224th mile.

9500 ft. 26.00 N. 30 lks.—Correction 148 lks. S.=118 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 223rd mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 223.325 M. stamped in the center. Raised a mound of stone 5 ft. high around the post.
Pits impracticable.
A pine tree 16 ins. dia. bears N. 7½° E. 152 lks. dist. marked Colo., 223.325 M., B. T.
A pine tree 14 ins. dia. bears S. 52¼° E. 25 lks. dist. marked N. M., 223.325 M., B. T.
A pine tree 12 ins. dia. bears S. 24⅛° W. 48 lks. dist. marked N. M., 223.325 M., B. T.
A pine tree 26 ins. dia. bears N. 16½° W. 176 lks. dist. marked Colo., 223.325 M., B. T.
Thence along N. slope in dense timber and brush.

80.00 Comes in dense brush on N. slope.
I advance this cor.; ascend.
Land, rolling and broken.
Soil, clay loam, 3rd rate.
[fol. 243] Vegetation, pine, spruce and aspen timber; oak and aspen brush.

Altitude	Chs.	225th Mile
		S. 89° 55′ E. on the tangent to the parallel. Ascend along N. slope. Head of ravine about 800 ft. deep, that runs N. to the Purgatory River at Tercio about 5 miles dist. Difference between measurements of 66.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
		By 1st set 66.02 chs.
		By 2nd set 65.98 chs.; the mean of which is 66.00 chs.—54.00 chs., the dist. from last cor. to 80.02 chs. point=12.00 chs. on 225th mile.
9450 ft.	12.00	N. 39 lks.—Correction 170 lks. S.= 131 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 224th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 224.15 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pine tree 30 ins. dia. bears N. 8° E. 50 lks. dist. marked Colo., 224.15 M., B. T.
		A pine tree 12 ins. dia. bears S. 18° E. 16 lks. dist. marked N. M., 224.15 M., B. T.
		A pinon tree 12 ins. dia. bears S. 45° W. 84 lks. dist. marked N. M., 224.15 M., B. T.
		No trees within limits to N. W.
		This cor. on steep slope near top of ridge.
		The town of Tercio can be seen from it, about 5 miles to the N.
		Alt. 9450 ft.
		Temp. 85°.
		Ascend.
	15.00	Top of ridge bears N. E. and S. about 10 chs.: then W.
		Thence by stadia measurement,
[fol. 234]		Angle 4°—, Rod 12.00 ft. double=2400 ft. × .9951=2388.24 ft.+C.=1.15 ft.=2389.39 ft.= 36.20 chs.+15.00 chs.—51.20 chs.
	40.00	Head of gluch, course S. E.
	51.20	Stadia point, thence by tape measurement,
	53.00	On spur, slope S. E.
		Difference between measurements of 31.80 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 31.81 chs.
		By 2nd set 31.79 chs.; the mean of which is 31.80 chs.+36.20 chs., stadia=12.00 chs.=80.00 chs.

Altitude	Chs.	
9150 ft.	80.00	N. 49 lks.—Correction 191 lks. S.=142 lks. S. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 225th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 225 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. A pine tree 18 ins. dia. bears N. 48½° E. 56 lks. dist. marked Colo., 225 M., B. T. A pine tree 16 ins. dia. bears S. 70° W. 114 lks. dist. marked N. M., 225 M., B. T. A pine tree 12 ins. dia. bears N. 03¼° W. 87 lks. dist. marked Colo., 225 M., B. T. No tree suitable S. E. This cor. stands on W. slope in oak and scattering pine timber. Land, rough and broken. Soil, clay loam and rocky, 3rd rate. Vegetation, pine and pinon timber; oak and aspen brush. Alt. 9150 ft. Temp. 83°.

226th Mile

S. 89° 55′ E. on the tangent to the parallel.
Over rolling ground.

	22.00	Dry gulch, course S. E.
	40.00	Top of spur, slope S. E.; descend along W. slope.
[fol. 215]		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point. By 1st set 80.04 chs. By 2nd set 79.96 chs.; the mean of which is 80.00 chs.
8900 ft.	80.00	N. 62 lks.—Correction 216 lks. S.=154 lks. S. from the tanget. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 226th mile cor. A brass cap on top of the pipe has raised letters Colo. on N., N. M. on S. and 226 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. A pine tree 18 ins. dia. bears S. 11° E. 186 lks. dist. marked N. M., 226 M., B. T.

Altitude	Chs.	
		A pine tree 12 ins. dia. bears N. 28° W. 130 lks. dist. marked Colo., 226 M., B. T.
		This cor. on steep W. Slope of Lorencitó Canon. Land broken.
		Soil, clay loam, and rocky, 3rd rate.
		Vegetation, pine, pinon and aspen timber; oak and aspen brush.
		Alt. 8900 ft.
		Temp. 80°.
		July 4th, 1903.

I examine the transit and compare the steel tapes with the standard, find all in adjustment and tapes of correct length.

227th Mile

July 3rd, 1903.

		S. 89° 54' E. on the tangent to the parallel. Descend along steep W. slope.
8500 ft.	50.00	Bottom of Lorencito Canon, stream 2 lks. wide, course N. E.
[fol. 246]		
	56.74	On flat bottom of canon, old saw-mill site. Stadia measurement from this point,
		Angle 8°=Rod 766 double=1532 ft. × .9806=1562.28 ft. + C.=1.14 ft.=1503.42 ft.=22.78 chs. + 56.74 chs.=79.52 chs.
	63.00	Same stream, course S. W.; ascend.
	79.52	Stadia point, on rocky spur, slope N. W.
		Difference between measurements of 57.22 chs. by 2 sets of chainmen is 4 lks., position of middle point,
		By 1st set 57.24 chs.
		By 2nd set 57.20 chs.; the mean of which is 57.22 chs. + 22.78 chs.=80.00 chs.
8700 ft.	80.00	N. 76 lks.—Correction 240 lks. S.=164 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 227th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 227 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A yellow pine tree 14 ins. dia. bears N. 48° E.

Altitude	Chs.	
		84 lks. dist. marked Colo. 227 M., B. T. A pine tree 12 ins. dia. bears S. 21° E. 103 lks. dist. marked N. M., 227 M., B. T. A spruce tree 14 ins. dia. bears S. 54¾° W. 77 lks. dist. marked N. M., 227 M., B. T. A spruce tree 14 ins. dia. bears N. 43½° W. 84 lks. dist. marked Colo., 227 M., B. T. Land, broken and rocky. Soil, sandy and rocky, 3rd rate. Vegetation, pine, spruce and aspen timber; oak, aspen and willow brush. Alt. 8700 ft. Temp. 79°.

228th Mile

		S. 89° 53' E. on the tangent to the parallel. Descend.
	2.50	Dry ravine, 50 ft. deep, course S. E.; ascend.
[fol. 247]	17.00	Top of spur, slope S. E.; descend along south slope.
8400 ft.	75.41	Top of spur, slope S. E. Thence by stadia measurement. Level, Rod 9.38 double=1876 ft. + C.=1.15 ft. =1877.15 ft.=28.44 chs. + 75.41 chs.=103.85 chs.—80.00 chs.=23.85 chs. on the 229th mile.
	80.00	Comes on rough, brushy slope of canon. I advance this cor. Land, rough and broken. Soil, rocky, 3rd rate. Vegetation, pine, spruce and aspen timber; Oak and aspen brush.

229th Mile

		S. 89° 53' E. on the tangent to the parallel. Descend.
	14.00	Bottom of dry canon, about 300 ft. deep, course S.; ascend.
	23.85	Stadia point. Difference between measurements of 75.56 chs. by 2 sets of chainmen is 6 lks. position of middle point. By 1st set 75.59 chs. By 2nd set 75.53 chs.; the mean of which is 75.56 chs. + stadia 28.44 chs.=104.00 chs.—80.00 chs.=24.00 chs. on 229th mile.

Altitude	Chs.	
8550 ft.	24.00	N. 96 lks.—Correction 272 lks. S.=176 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 228th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 228.3 M stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pine tree 4 ins. dia. bears N. 34½° E. 93 lks. dist. marked Colo., 228.3 M., B. T.
		A pine tree 10 ins. dia. bears S. 85° E. 78 lks. dist. marked N. M., 228.3 M., B. T.
[fol. 248]		A pine tree 7 ins. dia. bears N. 33° W. 81 lks. dist. marked Colo., 228.3 M., B. T.
		No other tree within limits.
		Land, rough and broken.
		Soil, rocky, 3rd rate.
		Vegetation, pine, pinon and cedar timber; oak and aspen brush.
		Alt. 8550 ft.
		Temp. 82°.
		This cor. stands on south slope, rocky point of spur, about 300 ft. above bottom of Lorencito Canon.
	49.00	On spur, slope S., stadia measurement from this point,
		Angle 2° +. Rod 12.00 ft. double=2400 ft. × .9988=2397.12 ft. + C.=1.15 ft.=2398.27 ft. =36.33 chs. + 49.00 chs.=85.33 chs.—80.00 chs.=5.33 chs. on 230th mile.
	60.00	Dip rocky canon, course S.; ascend.
	80.00	Comes on steep W. slope.
		I advance this cor.
		Land, rough, broken and rocky.
		Soil, 3rd rate, rocky.
		Vegetation, pine, pinon and cedar timber; oak and aspen brush.

230th Mile

S. 89° 52' E. on the tangent to the parallel.

	5.33	Stadia point.
		Difference between measurements of 25.67 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 25.68 chs.

Altitude	Chs.	
		By 2nd set 25.66 chs.; the mean of which is 25.67 chs. + stadia 36.33 chs.=62.00 chs.—56.00 chs. (Dist. from last cor to 80.00 chs. point)=6.00 chs. on 230th mile.
8550 ft.	6.00	N. 111 lks.—Correction 292 lks. S.=181 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 229th mile cor. A brass cap on the top of the pipe has
[fol. 249]		raised letters Colo. on N., N. M. on S. and 229.075 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pine tree 18 ins. dia. bears N. 30½° E. 46 lks. dist. marked Colo., 229.075 M., B. T.
		A pine tree 8 ins. dia. bears S. 22½° E. 47 lks. dist. marked N. M., 229.075 M., B. T.
		A pine tree 5 ins. dia. bears S. 44½° W. 108 lks. dist marked N. M., 229.075 M., B. T.
		A pine tree 18 ins. dia. bears N. 36° W. 67 lks. dist. marked Colo., 229.075 M., B. T.
		East Spanish Peak bears N. 2° W.
		Alt. 8550 ft.
		Temp 86°.
	7.00	Top of ridge bears N. E. and S. W.
		Stadia measurement from this point.
		Angle 5°—, Rod 13.00 ft. double=2600 ft. × .9924=2580.28 ft. + C.=1.14 ft.=2581.42 ft. =3911 chs. + 7.00 chs.=46.11 chs.
	46.11	Stadia point in hollow, sloping N.; ascend.
	75.00	Top of ridge bears N. E. and S. W.
		Descend granually, along S. E. slope.
		Difference between measurements of 34.89 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 34.90 chs.
		By 2nd set 34.88 chs.; the mean of which is 34.89 chs. + 3911 chs., stadia=74.00 chs. from the last cor. + 6.00 chs.=80.00 chs.
8375 ft.	80.00	N. 129 lks.—Correction 314 lks. S.=185 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 6 ins. in the ground to bed rock for 230th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 230 M. stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post. Pits impracticable.
[fol. 250]		A pine tree 18 ins. dia. bears N. 20¼° E. 135 lks. dist. marked Colo., 230 M., B. T.

Altitude	Chs.	
		A pine tree 10 ins. dia. bears S. 78½° E. 114 lks. dist. marked N. M., 230 M., B. T.
		A pine tree 16 ins. dia. bears S. 69¾° W. 118 lks. dist. marked N. M., 230 M., B. T.
		A pine tree 16 ins. dia. bears N. 42½° W. 100 lks. dist. marked Colo., 230 M., B. T.
		Land, broken and rough.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, pine and aspen timber; oak and aspen brush.
		Alt. 8375 ft.
		Temp. 86°.

231st Mile

		S. 89° 52′ E. on the tangent to the parallel.
	12.00	Thence by stadia measurement; Angle 2°—, Rod 12.95 ft. double=2590 ft. × .9988=2586.89 ft. + C.= 1.15 ft.=2588.04 ft. =39.21 chs. + 12.00 chs.=51.21 chs.
	47.00	Head of rocky canon about 200 ft. deep, course S.
	51.21	Stadia point, on rocky bluff, bears N. and S. Thence by tape across flat spur.
	58.50	On E. edge of rocky spur, bears N. W. and S. E. Stadia from this point; descend. Angle 11°—, Rod 6.60 ft. double=1320 [illegible] .9636=127195 ft. + C.=1.13 ft.=1273[illegible] =1929 chs. + 58.50 chs.=77.79 chs.
	74.00	Bottom of dry ravine, course S. E.; 350 ft. deep, below last stadia point; ascend.
	77.79	Stadia point, on low spur, slope S. Thence by tape, along brushy south slope. Difference between measurements of 21.50 chs. by 2 sets of chainmen is 2 lks. position of middle point, By 1st set 21.51 chs. By 2nd set 21.49 chs.; the mean of which is 21.50 chs. + 58.50 chs., stadia = 80.00 chs.
7950 ft.	80.00	N. 150 lks.—Correction 339 lks. S. = 189 lks. S. from the tangent, Set an iron pipe 3ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 231st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 231 M. stamped in the center.
[fol. 251]		Raised a mound of stone 5 ft. high around the post. Pits impracticable. A pine tree 16 ins. dia. bears N. 7° E. 129 lks. dist. marked Colo. 251 M., B. T.

Altitude	Chs.	
		A pine tree 12 ins. dia. bears S. 76½° E. 211 lks. dist. marked N. M., 231 M., B. T.
		A pine tree 14 ins. dia. bears N. 52° W. 243 lks. dist. marked Colo., 231 M., B. T.
		No tree within limit S. W.
		This cor. in oak brush on S. slope about 4 chs. N. of Lorencito creek.
		Land, rough and broken.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, pine, cedar and aspen timber.
		Oak and aspen brush.
		Alt. 7,950 ft.
		Temp. 85°.

232nd Mile

		S. 89° 51′ E. on the tangent to the parallel.
		Descend along brushy south slope.
7450 ft.	30.00	Bottom of Lorencito Canon, water in holes in bend, course S. W. to S. E.
	40.00	Low point of spur, slope S.
	54.00	Same stream, course N. E.
		Ascend along N. slope.
7550 ft.	76.00	Top of spur, slope N.; descend.
	79.60	Bottom of ravine from S.; road bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point;
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
7450 ft.	80.00	N. 172 lks.—Correction 264 lks. S. = 192 lks. S. from the tangent.
[fol. 252],		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 232nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 232 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high, around the post. Pits impracticable.
		A pine tree 16 ins. dia. bears N. 43¾° W. 480 lks. dist. marked Colo., 232 M., B. T.
		A pine tree 8 ins. dia. bears S. 41½° W. 423 lks. dist. marked N. M., 232 M., B. T.
		No other trees within limits.
		This cor. stands in mouth of canon from the S.
		Ruins of old lumber camp in main canon about 10 chs. N.
		Land, rough and broken.

Altitude	Chs.	
		Soil, rocky, clay and sand, 3rd rate. Vegetation, pine, cedar and aspen timber; oak and aspen brush.

On the afternoon of May 12th, 1903, I adjust the transit in all its parts.

At the point for the 232nd mile cor., at 4h 5m A. M. l. m. t. I observe Polaris at eastern elongation, May 13th, 1903, and mark a point in the line so found on a plug driven in the ground N. of my station.

At 7h A. M. May 13th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground N. of my station.

The magnetic bearing of this meridian is N. 13° 30′ W.

This gives magnetic variation, 13° 30′ E.

I now lay off an angle 90° from the meridian from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was taken, with the telescope reversed at each sight.

[fol: 253]

N. B.—These observations on Polaris for meridian were taken and tangent cut out through timber and brush, before the corrections and subsequent adjustment of line was made, hence the difference in date.

233rd Mile

		East on the tangent to the parallel.
	1.00	Stream 2 lks. wide in bottom of ravine, course N. E. about 10 chs. to where it joins the Lorencito canon; ascend.
	10.00	Top of spur about 50 ft. high, slope N.
	23.00	Dry gulch, course N.
	37.13	On spur, slope N., stadia measurement, Angle 4° +. Rod 12.40 single = 1240 ft. × .9951 = 1233.92 ft. + C. = 1.15 ft. = 1235.07 ft. = 18.71 chs. + 37.13 chs. = 55.84 chs.
7650 ft.	55.84	Stadia point on high spur, slope N. E. Angle 3°+, Rod 8.30 ft. double = 1,660 ft. × .9973 = 1655.52 ft. + C. = 1.15 ft. = 1656.67 ft. = 25.10 chs. + 55.84 chs. = 80.94 chs.—94 chs. = 80.00 chs.
	73.00	Wagon road in canon, bears N. and S.

Altitude	Chs	
7450 ft.	76.00	Stream 3 lks. wide in bottom of canon, course N. about ¼ mile to Lorencito Canon which there turns to N. E.
	78.00	Foot of hill bears N. and S.; ascend.
7550 ft.	80.00	N. .76 of link—Correction 388 lks. S = 387.24 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 233rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 233 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A cedar tree 12 ins. dia. bears N. 9° W. 245 lks. dist. marked Colo., 233 M., B. T.
		A pine tree 14 ins. dia. bears S. 100 lks. dist. marked N. M., 233 M., B. T.
[fol. 254]		No other trees within limit.
		Land, rough and broken.
		Soil, sand and clay, 3rd rate.
		Vegetation, pine, cedar and aspen timber.
		Oak and aspen brush.
		Alt. 7550 ft.
		Temp. 84°.

234th Mile

		S. 89° 59′ E. on the tangent to the parallel.
		Ascend in dense oak brush.
	6.00	Top of spur, slope S. W. 200 ft. above gulch.
		Thence along S. slope in dense brush.
7600 ft.	34.00	Bottom of dry ravine, course S. W.; ascend.
7900 ft.	70.00	Top of spur, slope N., thence along N. slope.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is 80.00 chs.
7950 ft.	80.00	N. 3 lks.—Correction 413 lks. S. = 410 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 234th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 234 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.

Altitude	Chs.	
		Pits impracticable.
		A pine tree 8 ins. dia. bears N. 73° E. 115 lks. dist. marked Colo., 234 M., B. T.
		A pine tree 18 ins. dia. bears S. 29½° E. 236 lks. dist. marked N. M., 234 M., B. T.
		A pine tree 16 ins. dia. bears N. 35½° W. 42 lks. dist. marked Colo., 234 M., B. T.
		No trees S. W. within limit suitable for bearing trees.
		This cor. stands near head of dry ravine course N.
		Land, rough and broken.
[fol. 255]		Soil, rocky, clay loam, 3rd rate.
		Vegetation, pine and spruce timber; oak, aspen and locust brush.
		Alt. 7959 ft.
		Temp. 80°

July 3rd, 1903.

I examine the adjustments of the transit and compare the steel tapes with the standard and find all correct and in adjustment.

July 2nd, 1903.

235th Mile

		S. 89° 59' E. on the tangent to the parallel.
		Along N. slope, near top of ridge.
	50.00	Dry canon near the head, course N.
	64.24	Wagon road bears W. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
8200 ft.	80.00	N. 7 lks.—Correction 438 lks. S.=431 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 235th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 235 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.

Altitude	Chs.	
		This cor. stands on stony point on top of high ridge that bears SE. and SW.
		A pine tree 7 ins. dia. bears N. 58½° E. 29 lks. dist. marked Colo., 235 M., B.T.
		A pine tree 10 ins. dia. bears S. 34¼° E. 70 lks. dist. marked N.M., 235 M., B.T.
		A pine tree 8 ins. dia. bears S. 31½° W. 20 lks. dist. marked N.M., 235 M., B.T.
[fol. 256]		A pine tree 8 ins. dia. bears N. 61½° W. 22 lks. dist. marked Colo., 235 M., B.T.
		Land, rough and broken.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.
		Much of the timber has been cut for railroad ties, and mining timbers.
		Alt. 8200 ft.
		Temp. 83°.

236th Mile

		S. 89° 58' E. on the tangent to the parallel. Descending along N. slope.
	9.30	On spur, slope N.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
8025 ft.	80.00	N. 12 lks.—Correction 463 lks. S.=451 S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 236th. mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 236 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 24 ins. dia. bears N. 91½° E. 336 lks. dist. marked Colo., 236 M., B. T.
		A pine tree 10 ins. dia. bears S. 66½° E. 242 lks, dist. marked N.M., 236 M., B.T.
		A pine tree 16 ins. dia. bears N. 12½° W. 296 lks. dist. marked Colo., 236 M., B.T.
		No tree SW. within limit.
		This cor. stands on ridge at low point, bears N. and S.
		Land, rough and broken.
		Soil, sand and clay, 3rd rate.

Altitude	Chs.	
[fol. 257]		Vegetation, pine, spruce and aspen timber; oak aspen and locust brush.
		Alt. 8025 ft.
		Temp. 84°.

237th Mile

		S. 89° 57' E. on the tangent to the parallel.
	9.00	Thence by stadia measurement,
		Angle 3°—, Rod 11.10 ft. single=1110 ft.× .9973=1107.00 ft.+C.=1.15 ft.= 1108.15 ft.= 16.79 chs.+9.00 chs.=25.79 chs.
	20.00	Bottom dry ravine, course NE.
	25.79	Top of spur, slope N.
		Angle 00° Rod 10.00 ft. single=1000 ft.+C =1.15 ft.=1001.15 ft.=15.17 chs.+25.79 chs. =40.96 chs.
	38.00	Bottom same ravine, 150 ft. deep, course SE.
	40.96	Stadia point, on ridge bears NW. and SE. Descend.
7800 ft.	80.00	Comes in ravine about 450 ft. deep, course N.
		I advance this cor.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.

238th Mile

		S. 89° 57' E. on the tangent to the parallel.
		Ascend through timber and brush.
		Difference between measurements of 56.04 chs. by 2 sets of chainmen is 4 lks., position of middle point,
		By 1st set 56.06 chs.
		By 2nd set 56.02 chs.; the mean of which is 56.04 chs.+31.96 chs., stadia=88.00 chs.—80.00 chs.=8 chs. on the 238th mile.
7950 ft.	8.00	N. 20 lks.—Correction 489 lks. S.=469 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for
[fol. 258]		237th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N. N. M. on S. and 237.1 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 15 ins. dia. bears N. 21° E. 82 lks. dist. marked Colo., 237.1 M., B.T.

Altitude	Chs.	
		A pine tree 8 ins. dia. bears S. 54° E. 58 lks. dist. marked N.M., 237.1 M., B.T.
		A pine tree 10 ins. dia. bears S. 33¾° W. 87 lks. dist. marked N.M., 237.1 M., B.T.
		A pine tree 8 ins. dia. bears N. 11° W. 57 lks. dist. marked Colo., 237.1 M., B.T.
		Alt. 7950 ft.
		Temp. 84°
		Ascend.
	13.00	Top of spur, slope N.
		Thence by stadia measurement.
		Angle 2° + Rod 11.50 double=2300 ft.×.9988 =2297.24 ft.+C.=1.15 ft.=2298.39 ft.=34.82 chs.+13.00 chs.=47.82 chs.
	18.00	Bottom dry ravine, 150 ft. deep, course N.
	25.00	Top of spur, slope N.
	33.00	Bottom dry ravine 200 ft. deep, course N. W. Mexican cabin and water hole, about 20 chs. NW.
		Ascend.
	47.82	On high spur, slope N., thence by tape measurement, along N. slope.
	70.00	Top of ridge bears NE. and SW.
		Difference between measurements of 37.17 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 37.19 chs.
		By 2nd set 37.17 chs.; the mean of which is 37.18 chs.+34.82 chs., stadia=72.00 chs. from last cor.+8.00 chs.=80.00 chs.
7930 ft.	80.00	N. 27 lks.—Correction 512 lks. S.=485 lks. S from the tangent.
[fol. 259]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 238th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S., and 238 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 16 ins. dia. bears N. 54° E. 87 lks. dist. marked Colo., 238 M., B. T.
		A pine tree 16 ins. dia. bears S. 44° E. 111 lks. dist. marked N.M., 238 M., B.T.
		A pine tree 24 ins. dia. bears S. 42° W. 7 lks. dist. marked N.M., 238 M., B.T.
		A pine tree 24 ins. dia. bears N. 80° W. 122 lks. dist. marked Colo.; 238 M., B.T.
		Land, rough and broken.
		Soil, sandy loam, 3rd rate.

Altitude	Chs.	
		Vegetation, pine, spruce and aspen timber; oak, aspen and locust brush.
		Alt. 7930 ft.
		Temp. 84°.

239th Mile

		S. 89° 56' E. on the tangent to the parallel.
	5.00	Dry gulch, course SE.; ascend.
	16.00	Top of ridge bears NW. and SE.; descend.
	45.00	Bottom of ravine, course NE.; ascend.
7900 ft.	76.00	Top of spur, slope NE.; descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point.
		By 1st set 80.07 chs.
		By 2nd set 79.93 chs.; the mean of which is 80.00 chs.
7720 ft.	80.00	N. 37 lks.—Correction 537 lks. S.=500 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 239th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 239th mile stamped in the center.
[fol. 260]		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree, 14 ins. dia. bears N. 51° E. 143 lks. dist. marked Colo., 239 M. B.T.
		A pine tree 30 ins. dia. bears S. 63° E. 41 lks. dist. marked N.M., 239 M., B.T.
		A pine tree 10 ins. dia. bears S. 35¾° W. 17 lks. dist. marked N.M., 239 M., B.T.
		A pine tree 12 ins. dia. bears N. 27° W. 126 lks. dist. marked Colo., 239 M., B.T.
		Land, rolling and broken.
		Soil, rocky, 3rd rate.
		Vegetation, pine, spruce and aspen timber; locust, oak and aspen brush.
		Alt. 7720 ft.
		Temp. 84°.

240th Mile

		S. 89° 55' E. on the tangent to the parallel.
		Descend.
	8.00	Stadia measurement from here.

Altitude	Chs.	
		Angle 5° —, Rod 11.10 ft. double=22.20 ft. × .9924=22.03.13 ft. + C =1.14 ft.=22.04.27 ft.= 33.39 chs. + 8.00 chs.=41.39 chs.
7420 ft.	34.00	Bottom of ravine about 300 ft. below cor., stream 3 lks. wide, course SE. Mexican houses just north of line.
	34.50	Wagon road bears NW. and SE.; ascend.
	41.39	Stadia point, thence by tape measurement.
7600 ft.	48.00	Top of spur slope S.; descend along S. slope.
	80.00	Comes on steep hillside.
		I advanced this cor.
		Land, rough and broken.
		Soil, sandy loam, 3rd rate.
		Vegetation, scattering pine and cedar timber; oak, aspen and locust brush.

241st Mile

		S. 89° 55' E. on the tangent to the parallel.
7380 ft.	5.00	Bottom of canon, stream 3 lks. wide, course NE.
[fol. 261]	5.50	Wagon road, bears N. E. and S. W.; ascend.
7450 ft.	20.00	Top of spur, slope N. E.; descend.
		Difference between measurements of 72.61 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 72.64 chs.
		By 2nd set 72.58 chs.; the mean of which is 72.61 chs. + 33.39 chs., stadia 106.00 chs. — 80.00 chs. = 26.00 chs. on 241st mile.
7430 ft.	26.00	N. 53 lks.—Correction 568 lks. S. = 515 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 240th mile cor. A brass cap on the top of the pipe has raised letters Colo., on N., N. M. on S. and 240.325 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 8 ins. dia. bears N. 42° W. 189 lks. dist. marked Colo., 240.325 M., B. T.
		A pine tree 14 ins. dia. bears N. 4° 51' W. 529 lks. dist. marked Colo., 240.325 M., B. T.
		No other trees suitable for bearing trees.
		Alt. 7439 ft.
		Temp 84°.
		Descend.

Altitude	Chs.	
7380 ft.	32.00	Bottom of Long Canon. Wagon road bears N. and S.
	35.50	R. R. track for timber. Trinidad to Catskill, bears N. E. and S. W.
	37.00	Stream 10 lks. wide, bottom of Long Canon, course N. W.
		Ascend.
	42.00	Top of spur, slope N., descend.
	55.00	Bottom of ravine, stream 2 lks. wide, course N. W.
		Ascend steep S. slope.
7700 ft.	75.00	Top of steep, brushy spur, slope S.; descend.
	[fols. 262 & 263]	Difference between measurements of 54.00 chs by 2 sets of chainmen is 4 lks., position of middle point.
		By 1st set 54.02 chs.
		By 2nd set 53.98 chs.; the mean of which is 54.00 chs. + 26.00 chs. = 80.00 chs.
7650 ft.	80.00	N. 62 lks. - Correction 586 lks. S. = 524 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 241st mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 241 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 14 ins. dia. bears S. 35½° E., 532 lks. dist. marked N. M., 241 M., B. T.
		No other trees within limit.
		This cor. stands in dense oak brush on south slope.
		Land, rough and broken.
		Soil, rocky, sand and clay, 3rd rate.
		Vegetation, scattering pine timber, oak and locust brush.
		Alt. 7650 ft.
		Temp. 83°.

242nd Mile

		S. 89° 54' E. on the tangent to the parallel.
		Descend.
7550 ft.	10.00	Dry ravine, course S.; ascend.
7980 ft.	40.00	Top of high ridge, bears N. E. and N. W.
		Thence along S. slope near top of ridge.
	78.00	Top of spur, slope S.

Altitude	Chs	
		Difference between measurements of 80.06 chs. by 2 sets of chainmen is 12 lks.; position of middle point.
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is 80.00 chs.
7950 ft.	80.00	S. 76 lks. — Correction 611 lks. S. = 535 lks. S. from the tangent.
[fol. 264]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 242nd mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 242 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 8 ins. dia. bears N. 33° E. 131 lks. dist. marked Colo., 242 M., B. T.
		A pine tree 16 ins. dia. bears S. 36½° E. 68 lks. dist. marked N. M., 242 M., B. T.
		A pine tree 20 ins. dia. bears S. 66° W. 32 lks. dist. marked N. M., 242 M., B. T.
		A pine tree 20 ins. dia. bears N. 52° W. 117 lks. dist. marked Colo.; 242 M., B. T.
		Land, rough and broken.
		Soil, rocky, 3rd rate.
		Vegetation, pine and spruce timber.
		Oak and locust brush.
		Alt. 7950 ft.
		Temp. 80°.

243rd Mile

		S. 89° 53' E. on the tangent to the parallel.
		Along south slope.
8000 ft.	22.50	On top of ridge bears N. and S.
		Thence by stadia.
		Angle 2° —, Rod 7.90 double = 1580 ft. × .9988 = 1578.10 ft. + C. = 1.15 ft. = 1579.25 ft. = 23.93 chs. + 22.50 chs. = 46.43 chs.
	27.00	Head of canon, course N. E.
	34.00	Top of spur, slope N.
	43.00	Bottom of ravine, 150 ft. deep, course N.; ascend.
	46.43	Stadia point on spur, slope N.
		Angle 60° Rod 10.00 ft. double = 2000 ft. + C. = 1.15 ft. = 2001.15 ft. = 30.32 chs. + 46.43 chs. = 76.75 chs.
7800 ft.	63.00	Bottom of canon 200 ft. deep, course N.; ascend.

Altitude	Chs	
[fol.265]	76.75	Stadia point on spur, slope N.
		Thence by tape measurement.
8050 ft.	80.00	N. 92 lks.—Correction 635 lks. S. = 543 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 243rd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 243 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 12 ins. dia. bears N. 40° E. 14 lks. dist. marked Colo.; 243 M., B. T.
		A pine tree 8 ins. dia. bears S. 33° E. 24 lks. dist. marked N. M., 243 M., L. T.
		A pine tree 8 ins. dia. bears S. 41° W. 107 lks. dist. marked N. M., 243 M., B. T.
		A pine tree 16 ins. dia. bears N. 21° 30' W. 30 lks. dist. marked Colo. 243 M., B. T.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, pine, spruce and cedar timber; oak, aspen and locust brush.
		Alt. 8050 ft.
		Temp. 75°.
		July 2nd, 1903.

I examine the adjustments of the transit and compare the steel tapes with the standard. Find all correct and in adjustment.

July 1st, 1903.

244th Mile

		S. 89° 53' E. on the tangent to the parallel.
	14.00	Bottom of dry ravine 150 ft. deep, course N.
	25.00	Top of spur, slope N.
	57.00	Stadia measurement from this point.
		Angle 00° Rod 12.30 double = 2460 ft. + C. = 1.15 ft. = 2461.15 ft. = 37.29 chs. + 57.00 chs. = 94.29 chs. — 80.00 chs. = 14.29 chs. on the 245th mile.
7850 ft.	80.00	Comes in canon, course N. about 200 ft. deep.
[fol. 266]		I advance this cor.
		Land, rough and broken.
		Soil, sand and clay, 3rd rate.

Altitude	Chs	
		Vegetation, pine, cedar and aspen timber.
		Oak, aspen and locust brush.

245th Mile

S. 89° 52' E. on the tangent to the parallel.
Ascend.

14.29 Stadia point on sharp spur, slope E.
Difference between measurements of 57.42 chs. by 2 sets of chainmen is 4 lks., position of middle point.
By 1st set 57.43 chs.
By 2nd set 57.39 chs.; the mean of which is 57.41 chs. + 37.29 chs., stadia = 94.70 chs. — 80.00 chs. = 14.70 chs. on the 245th mile.

8050 ft. 14.70 N. 114 lks.—Correction 650 lks. S. = 536 lks. S. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 244th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S., and 244.184 M. stamped in the center.
Raised a mound of stone 5 ft. base 2 ft. high around the post.
Pits impracticable.
No trees suitable for bearing trees.
East one of Spanish Peaks bears N. 30° 15' W.
NW. face of Fishers' Peak bears N. 54½° E.
Alt. 8050 ft.
Temp. 70°.
Thence by stadia measurement.
Angle 7°. Rod 8.50 ft. double = 17.00 ft. × 9851 = 1674.67 ft. + C. = 1.14 ft. = 1675.81 ft. = 25.39 chs. + 14.70 chs. = 40.09 chs.

7900 ft. 30.00 Bottom of ravine about 250 ft. deep, stream 2 lks. wide, course N.; ascend.

7950 ft. 40.09 [64.267] Stadia point on spur, slope N.; coal cropping, and spring about 2 chs. N.
Angle 8°. + Rod 11.00 ft. double = 22.00 ft. × 9806 = 2157.32 ft. + C. = 1.14 ft. = 2158.46 ft. = 32.70 chs. + 40.09 chs. = 72.79 chs.

7900 ft. 45.00 Bottom of ravine stream 2 lks. wide, course N. W.
Ascend.

72.79 Stadia point, thence by tape measurement.

8150 ft. 80.00 N. 129 lks.—Correction 685 lks. S. = 556 lks. S. from the tangent.

Altitude	Chs.	
		Set an iron pipe 3 ins. dia 4 ft. long with flanges at the bottom 2 ft. in the ground for the 245th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 245 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pinion tree 8 ins. dia. bears S. 67° W. 38 lks. dist. marked N. M., 245 M., B. T.
		A pinion tree 8 ins. dia. bears N. 15° W. 53 lks dist marked Colo., 245 M., B. T.
		No other trees suitable for bearing trees.
		This cor. stands on steep south slope, in brush.
		Land, rough and broken.
		Soil, sandy loam, 3rd rate.
		Vegetation, pine, pinion and cedar timber; oak, aspen and locust brush.
		Alt. 8150 ft.
		Temp. 83°.

246th Mile

S. 89° 52' E. on the tangent to the parallel.
Descend.
Stadia measurement.
Angle 2° +, Rod 12.00 ft. double = 2,400 ft. × .9988 + 2397.12 ft. + C. = 1.15 ft. = 2398.27 ft. = 36.33 chs.

	12.00	Head of ravine, course SE.; ascend.
8200 ft.	36.33	On ridge bears N. W. and S. E.
[fol. 268]		Thence by tape measurement.
		Descend.
7800 ft.	80.00	Bottom of dry ravine, about 300 ft. deep, course N. W.
		I advance this cor.
		Land, rough and broken.
		Soil, sandy loam, 3rd rate.
		Vegetation, pine, pinon and cedar timber.
		Oak, aspen and locust brush.

247th Mile

S. 89° 51' E. on the tangent to the parallel.
Ascend

	13.00	On spur, *slope* S.; thence along S. slope.
		Difference between measurements of 63.67 chs. by

Altitude	Chs.	
		2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 63.70 chs.
		By 2nd set 63.64 chs.; the mean of which is 63.67 chs. + 36.33 chs. stadia = 100.00 chs.— 80.00 chs. = 20.00 chs., on 247th mile.
8000 ft.	20.00	N. 155 lks.—Correction 716 lks. S. = 561 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 246th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 246.25 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pine tree 18 ins. dia. bears N. 42½° E. 19 lks. dist. marked Colo., 246.25 M., B. T.
		A pine tree 16 ins. dia. bears S. 49° E. 85 lks. dist. marked N. M., 246.25 M., B. T.
		A pine tree 17 ins. dia. bears S. 81° W. 96 lks. dist marked N. M., 246.25 M., B. T.
		A pine tree 19 ins. dia. bears N. 27½° W. 92 lks. dist. marked Colo., 246.25 M., B. T.
8100 ft.	27.00	Top of ridge bears N. W. and S. E.
		Descend along N. slope.
	60.00	Head of ravine, course N.; ascend.
	80.00	Comes in dense brush.
[fol. 269]		I advance this cor.
		Land, rough and broken.
		Soil, sandy loam, 3rd rate.
		Vegetation, pine and cedar timber; oak, aspen and locust brush.

248th Mile

		S. 89° 56′ E. on the tangent to the parallel.
		Ascend.
8100 ft.	10.00	Top of ridge bears N. and S.; descend.
7950 ft.	25.00	Bottom of ravine, course N. E. Wagon road and telephone line bears N. E. and S. W. Trinidad to Raton.
	25.30	Stream 2 lks. wide, course N. E.; ascend.
	30.00	Top of spur, slope N., 50 ft. high; descend.
	35.00	Dry gulch, course N.; ascend.
	43.50	Top of spur, slope N.
		Difference between measurements of 104.00 chs. by 2 sets of chainmen is 10 lks. position of middle point.

Altitude	Chs.	
		By 1st set 104.50 chs.
		By 2nd set 103.95 chs.; the mean of which is 104.00 chs.; from last cor. + 20.00 chs. = 124.00 chs.—80.00 chs. = 44.00 chs. on 248th mile.
8100 ft.	44.00	N. 185 lks.—Correction 747 lks. S. = 562 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 247th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 247.55 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable. A pine tree 14 ins. dia. bears N., 50½° E. 87 lks. dist. marked Colo., 247.55 M., B. T. A pine tree 14 ins. dia. bears S. 58° E. 95 lks. dist. marked N. M., 247.55 M., B. T. A pine tree 16 ins. dia. bears S. 36¾° W. 32 lks. dist. marked N. M., 247.55 M., B. T. A pine tree 12 ins. dia. bears N. 31° W. 86 lks. dist. marked Colo., 247.55 M., B. T.
[fol. 270]		Descend.
	55.00	Bottom of ravine, 150 ft. deep, course N.; ascend.
	80.00	Comes in dense brush.
		I advance this cor.
		Land, rough and broken.
		Soil, rocky and sandy loam, 3rd rate.
		Vegetation, pine and spruce timber.
		Oak and aspen and locust brush.

249th Mile

		S. 89° 50' E. on the tangent to the parallel.
		Over ravines and spurs, drainage N.
	20.00	Bottom of ravine 100 ft. deep, course N.
		Difference between measurements of 62.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
		By 1 set 62.02 chs.
		By 2nd set 61.98 chs.; the mean of which is 62.00 chs., from last cor. + 44.00 chs. = 106.00 chs. — 80.00 chs. = 26.00 chs. on the 249th mile.
8050 ft.	26.00	N. 203 lks.—Correction 766 lks. S. = 563 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 248th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 248.325 M. stamped in the center.

Altitude	Chs.	
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 16 ins. dia. bears N. 47° E. 43 lks. dist. marked Colo., 248.325 M., B. T.
		A pine tree 18 ins. dia. bears S. 50° E. 24 lks. dist. marked N. M., 248.325 M., B. T.
		A pine tree 18 ins. dia. bears S. 40° W. 55 lks. dist. marked N. M., 248.325 M., B. T.
		A pine tree 16 ins. dia. bears N. 35½° W. 58 lks. dist. marked Colo., 248.325 M., B. T.
		Alt. 8050 ft.
		Temp. 84°.
		[fol. 271] Thence across spurs and gulches.
		Drainage to the north.
	80.00	Comes in dense brush.
		I advance this cor.
		Land, rough and broken.
		Soil, sandy and stony; 3rd rate.
		Vegetation, pine, spruce and cedar timber; oak, aspen and locust brush.

250th Mile

		S. 89° 49′ E. on the tangent to the parallel.
		Along N. slope, crossing gulches.
	17.00	Bottom of ravine, about 200 ft. deep, course N. about 10 chs., then N. W.; ascend.
8470 ft.	41.00	Top of high ridge bears N. and S.; descend.
		Difference between measurements of 98.00 chs. by 2 sets of chainmen is 14 lks. position of middle point,
		By 1st set 98.07 chs.
		By 2nd set 97.93 chs.; the mean of which is 98.00 chs., from the last cor. +26.00 chs. = 124.00 chs. —80.00 chs. = 44.00 chs. on the 250th mile.
8450 ft.	44.00	N. 235 lks.—Correction 796 lks. S. = 561 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 249th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 249.55 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 12 in. dia. bears N. 36° E. 143 lks. dist. marked Colo., 249.55 M., B. T.

Altitude	Chs.	
		A pine tree 8 ins. dia. bears S. 76° E. 108 lks. dist. marked N. M., 249.55 M., B. T.
		A pine tree 14 ins. dia. bears S. 36¾° W. 133 lks. dist marked N. M., 249.55 M., B. T.
		A pine tree 12 ins. dia. bears N. 53¼° W. 65 lks. dist. marked Colo., 249.55 M., B. T.
	[fol. 272]	Alt. 8450 ft.
		Temp. 84°.
		Thence along S. slope.
	60.00	Head of ravine, course S. E.
	80.00	Comes in gulch, course S. E., in dense brush.
		I advance this cor.
		Land, rough and broken.
		Soil, rocky and sandy.

251st Mile

		S. 89° 48′ E. on the tangent to the parallel.
		Ascend along S. slope.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen in 6 lks., position of middle point,
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs., from last cor. + 44.00 chs. = 124.00 chs. — 80.00 chs. = 44.00 chs. on 251st mile.
8150 ft.	44.00	N. 262 lks.—Correction 821 lks. S. = 559 lks. S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 250th mile cor. A brass cap on the top of the pipe has raised letters Colo., on N., N. M. on S., and 250.55 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 18 ins. dia. bears N. 7½° E. 60 lks. dist. marked Colo., 250.55 M., B. T.
		A pine tree 16 ins. dia. bears S. 22° E. 31 lks. dist. marked N. M., 250.55 M., B. T.
		A pine tree 16 ins. dia. bears S. 48½° W. 52 lks. dist. marked N. M., 250.55 M., B. T.
		A pine tree 18 ins. dia. bears N. 78° W. 25 lks. dist. marked Colo., 250.55 M., B. T.
		This cor. on S. slope, near top of divide
		Alt. 8150 ft.
		Temp. 82°.
	[fol. 273]	Ascend.

Altitude	Chs.	
8200 ft.	52.00	Top of divide, bears N. W. and S. E.; ascend.
	80.00	Comes in ravine, 150 ft. deep, course N. E.
		I advance this cor.
		Land, rough and broken.
		Soil, sandy and rocky. 3rd rate.
		Vegetation, pine, spruce and aspen timber.
		Oak, aspen and locust brush.

252nd Mile

		S. 89° 48′ E. on the tangent to the parallel.
		Ascend.
	15.00	On spur, slope N.; descend.
		Difference between measurements of 69.61 chs. by 2 sets of chainmen is 6 lks., position of middle point,
		By 1st set 69.64 chs.
		By 2nd set 69.58 chs.; the mean of which is 69.61 chs., dist. from last cor.+44.00 chs.= 113.61 chs.—80.00 chs.=33.61 chs. on 252nd mile.
7800 ft.	33.61	N. 287 lks.—Correction 843 lks. S.=556 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 251st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 251.42 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands in small opening in brush on N. E. slope.
		No trees within limit.
		N. W. face of Fisher's Peake bears N. 16° 44′ E.
		East Spanish Peak bears N. 40° 36′ W.
		Alt. 7800 ft.
		Temp. 80°.
		Descend.
7700 ft.	39.00	Bottom of dry ravine, course N.; ascend.
8000 ft.	50.00	Top of high spur, slope N.; descend.
	80.00	Comes in dense brush.
		I advance this cor.
[fol. 274]		Land, rough and broken.
		Soil, rocky and sandy, 3rd. rate.
		Vegetation, scattering pine timber; oak and locust brush.

Altitude	Chs.	
		253rd Mile
		S. 89° 47′ E. on the tangent to the parallel. Difference between measurements of 62.39 chs. by 2 sets of chainmen is 4 lks., position of middle point.
		By 1st set 62.41 chs.
		By 2nd set 62.37 chs.; the mean of which is 62.39 chs., from the last cor. +33.61 chs.=96.00 chs.—80.00 chs.=16.00 chs. on 253rd mile.
	13.00	Bottom of ravine, course N. E.
7650 ft.	16.00	N. 313 lks.—Correction 866 lks. S.=553 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 252nd mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 252.2 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pine tree 24 ins. dia. bears N. 36½° E. 118 lks. dist. marked Colo., 252.2 M., B. T.
		A pine tree 24 ins. dia. bears S. 51½° E. 98 lks. dist. marked N. M., 252.2 M., B. T.
		No other trees within limit.
		July 1st, 1903.

On May 18th, 1903, I carefully adjust the transit in all its parts.

And at the point for 252nd mile cor.,

At 3h 44m A. M., l. m. t. May 19th, 1903, I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground N. of my station.

At 7h A. M., May 19th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West, and

[fol. 275]

mark a point in the true meridian on a plug driven in the ground North of my station.

The magnetic bearing of this meridian is N. 13° 30′ W.

This gives the magnetic variation 13° 30′ E.

I now lay off an angle of 90° from this meridian from the N. to the E. for the tangent to the parallel.

In all these observations and the subsequent turning of angles the mean of four sights was used with the telescope reversed at each sight.

Altitude Chs.

From the point for 252.2nd mile cor. I ran South 31.20 chs. and West 13.57 chs. to Darling's 80th mile cor., which I found under a wire fence, that bears E. and W. about 20 chs. west of the North end of the A. T. & S. F. R. R. Co.'s Raton tunnel. It was a sandstone 19 x 12 x 6 ins. in a stone mound and marked C. on N., 80 M., on E., N. M. on S., 1868 on W. I retraced the Darling line to the East to the top of the high mesa, but failed to find a cor. I also retraced the line to the West, found and destroyed the cors. to and including the 92nd mile cor., which stood near timber R. R. track in Long Canon. West of this I failed to find his cors. till I reached the 114th mile.

253rd Mile

June 30th, 1903.

East on the tangent to the parallel.

22.00 Top of spur, slope N.; descend.

26.90 Wagon road, bears N. and S.

28.40 Dry gulch, course N.

29.70 Atchison, Topeka and Santa Fe R. R. track bears N. E. and S. E. about 4 chs. south of the Wottoon Station sign-board and about 30 chs. North of the N. end of the Raton tunnel.

3.35 Top of ridge bears N. and S.

[fol. 276]

Thence by stadia measurement.

Angle 6° + Rod 6.20 double = 1240 ft. × .9891 = 1226.48 ft. + C. = 1.14 ft. = 1227.62 ft. = 18.60 chs. + 31.35 chs. = 49.95 chs.

49.95 Stadia point, thence by tape,

Difference between measurements of 45.40 chs. by 2 sets of chainmen is 2 lks., position of middle point,

By 1st set 45.41 chs.

By 2nd set 45.39 chs.; the mean of which is 45.40 chs. + 1860 chs., stadia = 64.00 chs., from last cor. + 16.00 chs. = 80.00 chs.

7950 ft. 80.00 N. .76 of a line—Correction 882 lks. S. = 881.24 lks. S. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 253rd mile cor.

A brass cap on the top of the pipe has raised letters Colo., on N., N. M. on S. and 253 M. stamped on the center.

Raised a mound of stone 5 ft. base 2 ft. high around the post.

Altitude	Chs.	
		Pits impracticable.
		This cor. on steep brush N. W. slope.
		A pinon tree 12 ins. dia. bears S. 42½ W. 247 lks. dist. marked 253 M., B. T.
		No other trees within limits.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scattering pine and pinon timber. Oak and locust brush.
		Alt. 7950 ft.
		Temp. 75°.

254th Mile

		S. 89° 59′ E. on the tangent to the parallel.
		Ascend steep.
8450 ft.	28.00	On edge of Bartlett Mesa, bears S. W. and N. E.
	40.00	Leave mesa bears N. W. and S. E.
		Thence by stadia; descend.
[fol. 277]		Angle 0°, Rod 13.00 ft. double = 2600 ft. + C. = 1.15 ft. = 2601.15 ft. = 39.41 chs. + 40.00 chs. = 79.41 chs.
8150 ft.	60.00	Hollow drains N.; ascend.
8450 ft.	79.41	Stadia point on mesa, bears N. E. and S. W.
		Difference between measurements of 40.59 chs. by 2 sets of chainmen is 8 lks. position of middle point,
		By 1st set 40.63 chs.
		By 2nd set 40.55 chs.; the mean of which is 40.59 chs. + 39.41 chs. = 80.00 chs.
8450 ft.	80.00	N. 3 lks.—Correction 907 lks. S. = 904 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 254th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 254 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		Fishers' Peak bears N. 1° W.
		East Spanish Peak bears N. 42° 40′ W.
		This cor. stands on the mesa.
		Land, rough and broken.
		Partly mesa or table land.
		Soil, sandy loam and rocky, 3rd rate.
		Vegetation, grass; scrub spruce and cedar along edge of cliff; oak brush on slope.
		Alt. 8450 ft.
		Temp. 82°.

Altitude	Chs.	
		255th Mile
		S. 89° 59′ E. on the tangent to the parallel.
		Over top of mesa.
8150 ft.	22.80	East edge of mesa, bears N. W. and S. E.
		Thence by stadia measurement,
		Angle 7° —Rod 12.80 double = 2560 ft. × .9851 = 2521.86 ft. + C. = 1.14 ft. = 2523.00 ft. = 38.22 chs. + 22.80 chs. = 61.02 chs.
	26.00	Foot of cliffs about 150 ft. high, bears N. W.
[61 27 8]		and S. E.
		Thence descend over broken rock and through brush.
	61.02	Stadia point, thence by tape; descend.
		Difference between measurements of 41.78 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 41.81 chs.
		By 2nd set 41.75 chs.; the mean of which is 41.78 chs. + 38.22 chs. = 80.00 chs.
7900 ft.	80.00	N. 7 lks.—Correction 932 lks. S. = 925 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 255th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 255 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limit.
		This cor. on N. slope.
		Land, rough and broken, and rocky.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, grass; oak and locust brush with a fringe of spruce and pinion along the cliff.
		Alt. 7900 ft.
		Temp. 82°.

		256th Mile
		S. 89° 58′ E. on the tangent to the parallel.
		Stadia measurement,
		Angle 7° + Rod 12.90 double = 2580 ft. × .9851 = 2541.56 ft. + C. = 1.14 ft. = 254.70 ft. = 38.52 chs.
7800 ft.	14.00	Bottom of dry ravine, course N. W.; ascend.

Altitude	Chs.	
	35.00	Foot of cliffs, bears N. W. and S. E.; ascend.
8450 ft.	38.52	Stadia point on top of mesa, bears N. W. and S. E.
[fol. 279]		Thence by tape measurement, across top of mesa
	54.00	East edge of mesa bears N. W. and S. E.
		Descend along steep brushy N. E. slope.
	80.00	Comes in dense brush.
		I advance this cor.
		Land, rough and broken.
		Soil, rocky and sandy loam, 3rd rate.
		Vegetation, grass on mesa; oak, aspen and florist brush; and scattering spruce and pine timber on N. W. slope.

257th Mile

S. 89th° 57′ E. on the tangent to the parallel.
Difference between measurements of 55.08 chs by 2 sets of chainmen is 4 lks. position of middle point.
By 1st set 55.10 chs.
By 2nd set 55.06 chs.; the mean of which is 55.08 chs. + 38.52 chs., stadia = 93.60 chs. − 80.00 chs. = 13.60 chs. on 257th mile.

8450 ft.	13.60	N. 13 lks.—Correction 961 lks. S. = 948 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 256th mile. cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 256.17 stamped in the center.
	—	Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A spruce tree 30 ins. dia. bears N. 68½° E. 39 lks. dist. marked Colo., 256.17 M., B. T.
		A spruce tree 20 ins. dia. bears S. 43¼° E. 126 lks. dist. marked N. M., 256.17 M., B. T.
		A spruce tree 16 ins. dia. bears S. 31¼° W. 41 lks. dist. marked N. M., 256.17 M., B. T.
		A white oak tree 10 ins. dia. bears N. 56° W. 91 lks. dist. marked Colo., 256.17 M., B. T.
		This cor stands on steep N. E. slope in heavy timber.
[fol. 280]		Alt. 8150 ft.
		Temp. 82°.
		Descend.
	25.00	Bottom of ravine, stream 1 lk. wide, course S. E.

Altitude	Chs.	
		50 ft. below cor.; ascend.
	27.00	Wagon road bears N. W. and S. E.
	30.00	Point of spur, slope S.
	33.00	Same road bears N. E. and S. W.
	36.00	Same gulch, course N. W.; ascend.
8250 ft.	55.00	Top of spur, slope N.; descend.
7950 ft.	74.50	Bottom of deep ravine, stream 5 lks. wide, course S. E., Lilly's Creek.
	76.00	Same road bears N. W. and S. E.; ascend.
		Difference between measurements of 66.50 chs. by 2 sets of chainmen is 8 lks., position of middle point.
		By 1st set 66.54 chs.
		By 2nd set 66.45 chs.; the mean of which is 66.50 chs., from the last cor. + 13.50 chs. = 80.00 chs.
8000 ft.	80.00	N. 19 lks. — Correction 981 lks. S. = 962 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 257th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 257 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pine tree 18 ins. dia. bears N. 31° E. 124 lks. dist. marked Colo., 257 M., B. T.
		A pine tree 16 ins. dia. bears S. 82° E. 126 lks. dist. marked N. M., 257 M. B. T.
		A pine tree 12 ins. dia. bears S. 5° W. 98 lks. dist. marked N. M., 257 M., B. T.
		A pine tree 12 ins. dia. bears N. 18½° W. 147 lks. dist. marked Colo., 257 M., B. T.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
[fol 281]		Vegetation; spruce, pine and aspen timber; oak, aspen, locust and willow brush.
		Alt. 8000 ft.
		Temp. 83

258th Mile.

		S. 89° 37' E. on the tangent to the parallel.
		Descend along S. slope.
7950 ft.	12.00	Bottom of ravine, stream 2 lks. wide, course S. W.
		Ascend.
8500 ft.	46.50	Top of high ridge or butte, bears N. and S.; descend.
		Stadia measurement.

Altitude	Chs.	
		Angle 8° — Rod 12.95 ft. double = 2590 ft. × .9806 = 2539.75 ft. + C. = 1.14 ft. = 2540.89 ft. = 38.49 chs. + 46.50 chs. = 84.99 chs. — 80.00 chs. = 4.99 chs. on the 259th mile.
	80.00	Comes in dense brush on steep hillside.
		I advance this cor.
		Land, rough and broken.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, scattering pine and spruce timber.
		Oak, locust and aspen brush.

259th Mile

		S. 89° 56' E. on the tangent to the parallel.
	6.00	Bottom of ravine, course S. E.; ascend.
		Difference between measurements of 53.51 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 53.54 chs.
		By 2nd set 53.48 chs.; the mean of which = 53.51 chs. + 38.49 chs., stadia = 92.00 chs. — 80.00 chs. = 12.00 chs. on 259th mile.
8200 ft.	12.00	N. 28 lks. — Correction 1010 lks. S. = 982 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom 2 ft. in the ground for 258th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 258.15 M. stamped in the center.
[fol. 282]		Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
		A pine tree 12 ins. dia. bears N. 40° E. 56 lks. dist. marked Colo., 258.15 M., B. T.
		A pine tree 18 ins. dia. bears S. 48½° E. 68 lks. dist. marked N. M., 258.15 M., B. T.
		A pine tree 18 ins. dia. bears S. 71½° W. 83 lks. dist. marked N. M., 258.15 M., B. T.
		A pine tree 18 ins. dia. bears N. 25° W. 185 lks. dist. marked Colo., 258.15 M., B. T.
		Alt. 8200 ft.
		Temp. 83°.
		Ascend.
8250 ft.	20.00	On spur, slope S. E.; descend.
	65.00	Spring branch 1 link wide course S. E.; ascend.
		Difference between measurements of 68.00 chs. by 2 sets of chainmen is 10 lks. position of middle point.
		By 1st set 68.05 chs.

Altitude	Chs.	
		By 2nd set 67.95 chs.; the mean of which is 68.00 chs. from the last cor. + 12.00 chs = 80.00 chs.
7900 ft.	80.00	N. 37 lks. — Correction 1031 lks. S. = 994 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 259th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 259 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pine tree 16 ins. dia. bears N. 49½° E. 147 lks. dist. marked Colo., 259 M., B. T.
		A pine tree 24 ins. dia. bears S. 25½° E. 117 lks. dist. marked N. M., 259 M., B. T.
		A pine tree 24 ins. dia. bears S. 65° W. 121 lks. dist. marked N. M., 259 M., B. T.
		A pine tree 16 ins. dia. bears N. 47° W. 198 lks. dist. marked Colo., 259 M., B. T.
[fol. 283]		This cor. stands on S. W. slope, in heavy timber.
		Land, rough and broken.
		Soil, sandy loam, 3rd rate.
		Vegetation, pine and spruce timber.
		Oak, aspen and locust brush.
		Alt. 7900 ft.
		Temp. 83°.

260th Mile

		S. 89° 55' E. on the tangent to the parallel.
		Ascend.
7950 ft.	5.00	Top of spur, slope S.
		Thence by stadia measurement.
		Angle 4° — Rod 13.00 ft. double = 26.00 ft. × .9951 = 2587.26 ft. + C. = 1.15 ft. = 2588.41 ft. = 39.11 chs. + 5.00 chs. = 44.11 chs.
7650 ft.	35.00	Bottom of canon, stream 4 lks. wide, course S. E.
		Small house about 2 chs. N.
	38.00	Wagon road bears N. and S.; ascend.
7700 ft.	44.11	Stadia point on spur, slope S.
		Descend, thence by tape measurement.
	60.00	Wagon road, bears N. E. and S. W.
7650 ft.	63.00	Chicorica Creek 10 lks. wide, course S. W.
		Ascend in dense brush.
	80.00	Comes in dense brush.
		I advance this cor.
		Land, rough and broken.
		Soil, rocky, sandy loam, 3rd rate.

Altitude	Chs.	
		Vegetation, grass: scattering pine and aspen timber. Oak, aspen and locust brush.

261st Mile

S. 89° 55′ E. on the tangent to the parallel.
Ascend in dense oak brush.
Difference between measurements of 56.89 chs. by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 56.90 chs.
By 2nd set 56.88 chs.; the mean of which is 56.89 chs. × 39.11 chs. = 96.00 chs.—80.00 chs. = 16.00 chs. on the 261st mile.

7975 ft. [fol. 284]	16.00	N. 12 lks. — Correction 1060 lks. S. = 1008 lks. S. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 260th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 260 2 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. This cor. stands on steep N. slope in timber and brush. An aspen tree 10 ins. dia. bears N. 22½° E. 70 lks. dist. marked Colo., 260.2 M., B. T. An aspen tree 10 ins. dia. bears S. 89° E. 34 lks. dist. marked N. M., 260.2 M., B. T. A white oak tree 8 ins. dia. bears S. 11° W. 46 lks. dist. marked N. M., 260.2 M., B. T. An aspen tree 8 ins. dia. bears N. 32° W. 36 lks. dist. marked Colo., 260.2 M., B. T. Alt. 7975 ft. Temp. 84°. Ascend in dense timber and brush. June 30th, 1903.

I examine the transit and compare the steel tapes with the standard, find tapes of correct length and instrument in adjustment.

June 29th, 1903.

	80.00	Comes on steep N. slope in dense timber and brush.

Altitude	Chs.	
		Land, rough and broken. Soil, sandy loam, 2nd rate. Vegetation, pine, spruce, aspen and oak timber. Oak, aspen, wild cherry and locust brush.

262nd Mile

		S. 89° 54′ E. on the tangent to the parallel. Ascend.
[fol. 285]	2.00	Foot of lava cliffs bears N. E. and S. W.; ascend.
	4.30	Top of cliffs about 200 ft. high on edge of mesa bears N. E. and S. W. Thence across mesa land; leave timber and brush. Difference between measurements of 80.00 chs. by 2 sets of chainmen is 16 lks., position of middle point, By 1st set 80.08 chs. By 2nd set 79.92 chs.; the mean of which is 80.00 chs., from last cor. + 16.00 chs. = 96.00 chs. — 80.00 chs. = 16.00 chs. on the 262nd mile.
8700 ft.	16.00	N. 65 lks. — Correction 1085 lks. S. = 1020 lks. S. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 261st mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 261.2 M., stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. No bearings. Thence over mesa land.
	75.80	Carpenter's house about 12 chs. N.
	78.15	Wagon road bears N. and S.
		Difference between measurements of 64.00 chs. by 2 sets of chainmen is nothing, the mean of which is 64 chs. from last cor. + 16.00 chs. = 80.00 chs.
8700 ft.	80.00	N. 76 lks. — Correction 1105 lks. S. = 1029 lks. S. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 262nd mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 262 M. stamped in the center.

Altitude	Chs.	
		Raised a mound of stone, 5 ft. base 2 ft. high around the post.
		[fol. 286] Pits impracticable.
		S. gable of Carpenter's house bears N. 22½° W. about 18.00 chs. dist.
		Chimney on square house bears S. 41½° E. about ½ mile dist.
		Round hill bears S. 28½° E. about 7 miles dist
		Land, gently rolling mesa.
		Soil, black loam, 2nd rate.
		Vegetation, grass; some of land cultivated.
		Alt. 8700 ft.
		Temp. 75°.

263rd Mile

		S. 89° 53′ E. on the tangent to the parallel.
		Over gently rolling mesa land.
		Cultivated fields N. and S. of line.
	78.67	Wagon road, bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks. position of middle point,
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
8675 ft.	80.00	N. 92 lks.—Correction 1130 lks. S. = 1038 lks S. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom 2 ft. in the ground for the 263rd mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 263 M. stamped in the center.
		Raised a mount of stone 5 ft. base, 2 ft. high around the post.
		Pits impracticable.
		Round hill bears S. 20¾° E. about 6 miles dist
		Chimney on square house bears S. 32½° W. about ½ mile dist.
		Land, gently rolling mesa.
		Soil, black loam, 2nd rate.
		[fol. 287] Vegetation, grass, used for grazing; cultivated land on each side of the line.
		Alt. 8675 ft.
		Temp. 80°.

Altitude	Chs.	
		264th Mile
		S. 89° 53′ E. on the tangent to the parallel. Descend.
	5.50	West edge of basin that becomes a pond in wet weather, bears N. and S. about 7 chs., each way.
	12.00	East edge of basin, bears N. and S.; ascend.
	20.00	Top of ridge bears N. and S.
		Thence over rolling hills.
	35.00	About 30 chs. south of this point found and destroyed Darling's 69th mile cor.
		Also found the 70th mile cor. and destroyed it.
		All we were able to find on this mesa.
		Difference between measurements of 66.28 chs. by 2 sets of chainmen is 2 lks.; position of middle point.
		By 1st set 66.29 chs.
		By 2nd set 66.27 chs.; the mean of which is 66.28 chs.
8700 ft.	66.28	East edge of mesa, bears NW. and SE.
		From this point made triangulation across Bear Canon, which has precipitous sides of lava rock, and the bottom covered with dense brush.
		Set flag on line across canon; ran base line S. 0° 7′ W. at right angles to the tangent 30.00 chs. from south end of base sight to north end and measure angle to flag across canon 72° 56′. Flag bears N. 73° 03′ E.
		Then Log. 30.00 chs. base=1.477121×Log tangent 72° 56′=10.512857=1.989978=97.72 chs. to Flag across Canon.
		97.72 chs.×66.28 chs.=164.00 chs.—160.00 chs.=4.00 chs. on 266th mile.
8400 ft. [fol. 288]	80.00	Comes in Bear Canon, impracticable to establish. Land, gently rolling, grass covered hills and rough rocky canon.
		Soil, sandy loam, and rocky, 2nd and 3rd rate. Vegetation, grass on hills; pine, spruce, aspen oak timber and brush in canon.
		265th Mile
		S. 89° 52′ E. on the tangent to the parallel. This mile comes all in Bear Canon, is very rough and covered with dense timber and brush.
8400 ft.	80.00	Comes at foot of wall of canon, bears NW. and SE., in dense brush; ascend.
		I advance this cor.

Altitude	Chs.	
		Land, rough, rocky. Soil, rocky, 3rd rate. Vegetation, pine, spruce, oak and aspen timber; oak, aspen, wild cherry and locust brush.

266th Mile

		S. 89° 52′ E. on the tangent to the parallel.
8700 ft	4.00	Triangulation point on top of wall about 300 ft. high, bears NW. and SE.
		N. 130 lks.—Correction 1180 lks. S.=1050 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom on bed rock for 265th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 265.05 M., stamped in the center. Raised a mound of stone 6 ft. base 2½ ft. high around the post. Pits impracticable.
		This cor. stands on rocky spur, at SW. cor of high mesa.
[fol. 289]		On the evening of May 21st, 1903, I carefully examine and adjust the transit in all its parts. At 3h 36m A. M. l.m.t., I observe Polaris at Eastern elongation, May 22nd, 1903, and mark a point in the line so determined on a plug driven in the ground N. of my station, which is near the point for 265th mile cor. At 7h 15m A. M., May 22nd, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground, North of my station.
		The magnetic bearing on the meridian is N. 13° 20′ W.
		This gives magnetic variation 13° 20′ E.
		I now lay off an angle of 90° from the North to the East, for the tangent to the parallel. In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

266th Mile continued

		East on the tangent to the parallel.
		Ascend gradually over rolling mesa land.
8730 ft.	48.00	Top of high ridge bears NW. and SE.; descend.
	53.00	On wall of rimrock, bears NE. and SW.
		Thence by stadia measurement; descend.

Altitude	Chs.	
		Angle 13°—Rod 9.00 ft. double=1800 ft.× .9494=1708.92 ft.+C.=1.12 ft.=1710.04 ft.= 25.91 chs.+53.00 chs.=78.91 chs.
	55.00	Foot of lava wall, bears NE. and SW., about 200 ft. high.
		Thence descend through timber and brush.
	78.91	Stadia point, thence by tape measurement. Difference between measurements of 50.09 chs. by 2 sets of chainmen is 4 lks., position of middle point.
		By 1st set 50.11 chs.
		By 2nd set 50.07 chs., the mean of which is
[fol. 290]		50.09 chs.+25.91 chs., stadia.=76.00 chs. from
		last cor.+4.00 chs.=80.00 chs.
8100 ft.	80.00	N. .76 of a link—Correction° 1204 lks. S.= 1203.24 lks.
		South from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 266th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 266 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A white oak tree 10 ins. dia. bears S. 46° E. 55 lks. dist. marked N.M., 266 M., B.T.
		A white oak tree 12 ins. dia. bears S. 9° W. 30 lks. dist. marked N.M., 266 M., B.T.
		A white oak tree 8 ins. dia. bears N. 58° W. 15 lks. dist. marked Colo., 266 M., B.T.
		No trees NE. suitable for bearing tree.
		This cor. in timber and brush, on E. slope.
		Land, rolling and broken.
		Soil, sandy loam and rocky, 3rd rate.
		Vegetation, grass on rolling mesa; and oak pine, spruce, aspen and cedar timber, oak, aspen and locust brush on slope.
		Alt. 8100 ft.
		Temp. 85°.

267th Mile

S. 89° 59′ E. on the tangent to the parallel.
Descend through timber and dense brush.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 14 lks., position of middle point.

Altitude	Chs.	
		By 1st set 80.07 chs. By 2nd set 79.93 chs.; the mean of which is 80.00 chs.
7400 ft.	80.00	On spur, slope SE. N. 3 lks.—Correction 1228 lks. S.=1225 lks. S. from the tangent.
[fol. 291]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 267th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N.M. on S. and 267 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable. A cedar tree 8 ins. dia. bears N. 45¾° E. 402 lks dist. marked Colo., 267 M., B.T. No other trees within limit. Land, rough and broken. Steep SE. slope from mesa. Soil, rocky clay loam, 3rd rate. Vegetation, scattering pine, cedar and aspen timber. Oak, aspen and locust brush. Alt. 7400 ft. Temp. 84°.

268th Mile

S. 89° 59° E. on the tangent to the parallel.
Descend.
Stadia measurements.
Angle 7°—Rod 12.70 ft. double=2540 ft. X .9851=2502.15 ft.+C.=1.14 ft.=2503.29 ft.=37.92 chs.

	22.00	Bottom of dry ravine 300 ft. deep, course SE. ascend.
	37.92	Stadia point on spur, slope SE. Thence by tape. Difference between measurements of 42.08 chs. by 2 sets of chainmen is 4 lks., position of middle point, By 1st set 42.10 chs. By 2nd set 42.06 chs.; the mean of which is 42.08 chs. + 37.92 chs.; stadia=80.00 chs.
6700 ft.	80.00	N. 7 lks.—Correction 1253 lks. S.=1246 lks. S. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 268th mile cor.

Altitude	Chs.	
[fol. 292]		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 268 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		No trees within limits.
		Land rough and broken.
		Soil, clay loam, 3rd rate.
		Vegetation, scattering pine, pinon and cedar timber; oak, aspen and locust brush.
		Alt. 6700 ft.
		Temp. 80°.
		June 29th, 1903.

269th Mile

June 28th, 1903.

		S. 89° 58' E. on the tangent to the parallel.
		Descend.
	9.00	Creek bottom, bears N. E. and S. W.
		Wagon road, bears N. E. and S. W.
6690 ft.	10.00	San Ysidro Creek, 15 lks. wide, course N. E.; ascend.
	48.00	Foot of steep bluff, bears N. E. and S. W.; ascend.
	50.00	Coal cropping bears N. E and S. W.
6790 ft.	52.00	Top of ridge bears N. E. and S. W.; descend.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is 80.00 chs.
6600 ft.	80.00	N. 12 lks.—Correction 1278 lks. S. = 1266 lks. S. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 269th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 269 M. stamped in the center.
[fol. 293]		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pinon tree 10 ins. dia. bears S. 27½° W. 15 lks. dist. marked N. M., 269 M., B. T.

Altitude	Chs.	
		No other trees within limit suitable for bearing trees.
		Land, rolling and broken.
		Soil, clay loam, and stony, 3rd rate.
		Vegetation, pinon, cedar and aspen timber.
		Oak and aspen brush.
		Alt. 6600 ft.
		Temp. 75°.

270th Mile

		S. 89° 57' E. on the tangent to the parallel.
		Ascend:
	6.00	Top of spur, slope S. E.; descend.
	35.00	Foot of hills bears N. E. and S. W.; bottom dry creek, dry water-course 8 lks. wide, course N. E.
	55.00	Darling's astronomical monument No. 2 bears South about 20 chs. dist. This monument is a cedar post, 12 ins. square and 8 ft. high, marked Colo. on N., 1868 on E., New Mexico on S., and 37° N. L. on W.
		I destroy these marks and retrace this line to the west to foot of mesa. Failed to find any more corners.
		Also retrace the Darling line from his monument No. 2, to the East.—Failed to find any corners, till I reach his 58th mile cor. at Trinchera Creek.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point.
		By 1st set 80.04 chs.
		By 2nd set 79.96 chs.; the mean of which is 80.00 chs.
6300 ft.	80.00	N. 19 lks.—Correction 1302 lks. = 1283 lks. S. From the tangent,
		Set temporary 270th mile cor.
		[fol. 294] See page 413.
		Land, rolling.
		Soil, clay loam, 3rd rate.
		Vegetation, grass; scattering pinon timber; and oak and locust brush.
		Alt. 6300 ft.
		Temp. 78°.

Altitude	Chs.	
		271st Mile
		S. 89° 57′ E. on the tangent to the parallel.
		Across little valley.
	3.50	Dry gulch, course N.; house about 30 chs. S. W.
	20.00	Foot of hills bears N. E. and S. W.; ascend.
	40.00	Top of ridge about 100 ft. high bears N. E. and S. W.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
6350 ft.	80.00	N. 27 lks.—Correction 1327 lks. S. = 1300 lks. S. from the tangent.
		Set temporary 271st mile cor.
		Land, rolling.
		Soil, clay loam, 2nd rate.
		Vegetation, grass; oak and locust brush.
		Alt. 6350 ft.
		Temp. 80°.

		272nd Mile
		S. 89° 56′ E. on the tangent to the parallel.
		Descend over rolling ground.
	15.00	Dry gulch, course N. E.
	30.00	Top of low ridge, bears N. E. and S. W.
	67.50	Gulch, water in holes, course N. E.
	77.00	Road to Trinchera, bears N. E. and S. W.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.
6150 ft. [fol. 295]	80.00	N. 37 lks.—Correction 1352 lks. S. = 1315 lks. S. from the tangent.
		Set temporary 272nd mile cor.
		Land, rolling.
		Soil, clay loam, 2nd rate.
		Vegetation, grass and oak brush.
		Alt. 6150 ft.
		Temp. 82°.

		273rd Mile
		S. 89° 51′ E. on the tangent to the parallel.
		Ascend over rolling land.
	77.00	In hollow, drains N.; ascend.

Altitude	Chs.	
		Difference between measurements of 80.00 chs by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
6100 ft.	80.00	N. 49 lks.—Correction 1376 lks. S. = 1327 lks. S. from the tangent.
		Set temporary 273rd mile cor.
		Land, rolling.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and oak brush.
		Alt. 6100 ft.
		Temp. 82°.

274th Mile

S. 89° 55' E. on the tangent to the parallel.
Ascend over rolling land.

3.00	Top of ridge bears N. E. and S. W., 50 ft. high
30.00	Wagon road, bears N. E. and S. W.
40.00	Brow of hill bears N. E. and S. W.; descend

Difference between measurements of 80.00 chs by 2 sets of chainmen is 4 lks., position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

6050 ft.	80.00	N. 62 lks.—Correction 1401 lks. S. = 1339 lks S. from the tangent.
[fol. 296]		Set temporary 274th mile cor.
		Land, rolling.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and oak brush.
		Alt. 6050 ft.
		Temp. 78°.

June 28th, 1903.

275th Mile

S. 89° 54' E. on the tangent to the parallel. The intersection with a meridian run North from Astronomical Station No. 6 at Trinchera Creek comes at 34.00 chs. in this mile. This station No. 6, was found to be 29.88 chs. S. of this point on the tangent.

Altitude Chs

The off-set being 72 lks. N., makes point on parallel 30.60 chs. N. of station. This station was found by astronomical observations on the nights of Oct. 28th, 29th and 30th, 1902, to be in Lat. 36° 59′ 52.19″ N. or 11.96 chs. South of the 37th parallel. Therefore, this point on the projected line from the West is 18.64 chs. N. of the 37th parallel and 14.04 chs. outside of the limit of 3″ of arc. As it is impracticable to place astronomical monument on this meridian, as it comes in cultivated land, and near R. I. Surveyor's house, the monument was moved West and at

6050 ft. 12.62 N. 64 lks.—Correction 1406 lks. S. = 1342 lks. S. from the tangent.

Set temporary astronomical monument at 458 lks. N. of the 37th parallel, as determined by astronomical observations, being just within the limit of 3″ arc, allowed by the Hon. Commissioner

For description of permanent monument, see page 415.

June 28th, 1903.

[fol. 297]

At a point 5 lks. South of the point for temporary 174th mile cor. and due West of the point for temporary astronomical monument No. 6, having previously examined the transit and found it to be in perfect adjustment, both as to the level and the collimation, on May 25th, 1903, at 3h 21m A. M. l. m. t., I observe Polaris at Eastern elongation and mark a point in the meridian so determined on a plug driven in the ground N. of my station.

At 7h 20m A. M., May 25th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground north of my station. The magnetic bearing of the true meridian is N. 13° 15′ W.

This gives magnetic variation, 13° 15′ E.

I now lay off 90° from the meridian from the N. to the East for the tangent to the parallel.

In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

Altitude	Chs.	275th Mile Continued
		East on the tangent to the parallel.
		Across Creek bottom.
	15.40	Road to the Plaza (once known as Brazil), bears N. and S. E.
	16.00	Wire fence bears N. and S. E., enter R. L. Survant's field.
	16.30	Irrigating ditch, bears N. and S. E.
	33.00	Survant's house about 3 chs. South.
	34.00	Darling's 58th mile cor. bears South 15.10 chs. dist.
		A basalt or trap rock 20 x 12 x 10 ins. set in ground and marked C. on N., 58 M. on E., N. M. on S. and 1868 on W. faces.
		I destroy this cor.
	37.50	Dry bed of Trinchera Creek 25 lks. wide, course N.
[fol. 298]	45.00	Foot of lava bluff about 60 ft. high, bears NE. and SW.
		Leave field and creek bottom; ascend.
	47.75	Top of bluff, bears NE. and SW.
		Thence over gently rolling, valley land.
	75.00	Foot of hills bears NE. and SW. Leave valley; ascend.
9		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 80.01 chs.
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
6150 ft.	80.00	N. .76 of a link from the tangent,
		Set temporary 275th mile cor.
		Land, creek bottom, and valley.
		Soil, sandy loam, 2nd and 3rd rate.
		Vegetation, grass, cultivated crops, alfalfa principally. Oak, aspen and willow brush along creek.
		N. B.—The subsequent adjustment of this line to the 37th parallel places Survant's house just North of the line in Colorado. See page 416.

276th Mile

		S. 89° 59' E. on the tangent to the parallel.
	4.00	A remarkable basalt or trap dyke resembles a wall laid up by man. Extends across the country about 4 miles, bears N. 80° E. and S. 80° W.
		Descend along S. slope.
	60.00	Dry gulch, course NE.; ascend.

Altitude	Chs.	
		Along N. base of volcanic cone.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point.
		By 1st set 80.02 chs.
		By 2nd set 79.98 chs., the mean of which is 80.00 chs.
6175 ft.	80.00	N. 3 lks. from the tangent.
		Set temporary 276th mile cor.
[fol. 299]		Land, rolling.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and oak brush.
		Alt. 6175 ft.
		Temp. 70°.

277th Mile

		S. 89° 59′ E. on the tangent to the parallel.
		Descend along N. slope of volcanic cone in oak brush.
	8.00	Bottom of dry gulch, 30 ft. deep, course N.; ascend.
	20.00	Top of low ridge bears NW. and SE.; descend.
	35.00	Foot of hills bears NW. and SE.; enter small valley.
	36.00	Wagon road, bears NW. and SE.
	57.60	Road, bears NE. and SW.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.
6100 ft.	80.00	N. 7 lks. from the tangent.
		Set temporary 277th mile cor.
		Land, rolling and valley.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and oak brush.
		Alt. 6100 ft.
		Temp. 75°.

278th Mile

		S. 89° 58′ E. on the tangent to the parallel.
	.50	Dry bed of stream 15 lks. wide, course NW. about 3.00 chs. then NE.
	3.00	Foot of hill bears N. and S.; ascend.
	8.00	Top of bluff about 50 ft. above valley, bears NE. and SW.
		Thence over rolling ground.
	36.00	Road bears N. and S.

Altitude	Chs.	
	42.00	Gulch, water in holes, banks 15 ft. high, course N.
		Ascend.
	50.00	Enter brush and scattering timber, bears N. E. and S. W.
[fol. 300]	80.00	Comes on steep hillside in dense brush.
		I advance this cor.
		Land, rolling.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass; oak brush, and scattering pinon timber.

279th Mile

		S. 89° 57' E. on the tangent to the parallel.
	6.00	Top of hill bears N. W. and S. E. about 100 ft. above bottom of gulch.
		Difference between measurement of 88.00 chs. by 2 sets of chainmen is 6 lks. position of middle point,
		By 1st set 88.03 chs.,
		By 2nd set 87.97 chs.; the mean of which is 88.00 chs.—80.00 chs. — 8.00 chs. on the 279th mile.
6200 ft.	8.00	N. 13 lks. from the tangent.
		Set temporary 278th mile cor., marked 278.1 M.
		Land, rolling.
		Soil, sandy and stony, 3rd rate.
		Vegetation, grass; oak brush and scattering pinon timber.
		Alt. 6200 ft.
		Temp. 78°.
	14.00	Dry ravine about 30 ft. deep, course N. W.; ascend over low brush covered hills.
	80.00	Comes in dry gulch, course N. W.
		I advance this cor.
		Land, rolling.
		Soil, sandy loam, and stony, 3rd rate.
		Vegetation, grass; oak brush and scattering pinon timber.

280th Mile

		S. 89° 57' E. on the tangent to the parallel.
		Ascend.
	5.80	Top of ridge bears N. E. and S. W.
[fol. 301]		Difference between measurements of 78.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,

Altitude	Chs.	
		By 1st set 78.02 chs.
		By 2nd set 77.98 chs.; the mean of which is 78.00 chs., from the last cor. + 8.00 chs.—86.00 chs.—80.00 chs. = 6.00 chs. on 280th mile.
6250 ft.	6.00	N. 19 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 279th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 279.075 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
		Pits impracticable:
		No trees suitable for bearing trees.
		Alt. 6250 ft.
		Temp. 75°.
		May 25th, 1903.

May 26th, 1903, rain. No line run.
I examine and adjust the transit and compare the steel tapes with the standard. Find them all correct.
Descend.

	19.25	Dry gulch, course N.; leave brush, bears N. W. and S. E.
	56.00	Dry gulch, course N. W.
	60.90	Wagon road, bears N. W. and S. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point:
		By 1st set 80.03 chs.
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
5950 ft.	80.00	N. 27 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 280th mile cor.
[fol. 302]		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 280 M. stamped in the center.
		Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
		Pits impracticable.
		A box elder tree 10 ins. dia. bears N. 49° 20′ E. 141 lks. dist., marked Colo., 280 M., B. T.
		No other trees within limit.
		A Mexican cabin about ½ mile N.
		Land, rolling.

Altitude	Chs.	
		Soil, sandy loam.
		Vegetation, grass and oak brush.
		Alt. 5950 ft.
		Temp. 60°.

281st Mile

		S. 89° 56′ E. on the tangent to the parallel.
	1.50	Dry bed of stream 20 lks. wide, course N.
		Ascend.
	10.00	Enter timber and brush, bears N. E. and S. W.
	35.00	Darling's 52nd mile cor. bears S. 11.80 chs. dist.
		I destroyed this cor. The first we have found
		East of his 58th mile cor.
	36.60	Top of ridge bears N. and S., 300 ft. above gulch.
		Thence over pinon hills.
	43.00	Dry ravine, course N.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs., the mean of which is 80.00 chs.
6120 ft.	80.00	N. 37 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 281st mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 281 M. stamped in the center.
[fol. 303]		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pit impracticable.
		A pinon tree 8 ins. dia. bears N. 54° W. 180 lks. dist. marked Colo., 281 M., B. T.
		No other trees suitable for bearing trees within limit.
		Land, rolling.
		Soil, sandy loam, 3rd rate.
		Vegetation, pinon timber; oak and aspen brush.
		Alt. 6120 ft.
		Temp. 68°.

282nd Mile

		S. 89° 55′ E. on the tangent to the parallel.
		Descend.
	2.00	Dry gulch; course N. E.

Altitude	Chs.	
	3.00	Dry ravine, course N., 50 ft. deep; ascend.
	48.00	Thence by stadia measurement, Angle 8° + Rod 9.75 ft. double = 1950 ft. × .9806 = 1912.17 ft. + C. = 1.14 ft. = 1913.31 ft. = 28.99 chs. + 48.90 chs. = 77.89 chs.
	54.00	Bottom of dry ravine, course N.
	77.89	Stadia point, thence by tape. Difference between measurements of 51.01 chs. by 2 sets of chainmen is 2 lks., position of middle point, By 1st set 51.02 chs., By 2nd set 51.00 chs.; the mean of which is 51.01 chs. + 28.99 chs., stadia = 80.00 chs.
6450 ft.	80.00	N. 49 lks. from the tangent, Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 282nd mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 282 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
[fol. 304]		Volcanic cone at Watervale station on the Colorado & Southern R. R. bears N. 7° 05′ W. about 1 mile dist. A volcanic cone bears N. 55° 40′ W. A volcanic cone bears S. 84° 21′ W. about 7 mile dist. This cor. stands on N. slope in dense oak brush. Land, rough and broken. Soil, sandy and rocky, 3rd rate. Vegetation, grass, oak brush and scattering pinon timber. Alt. 6450 ft. Temp. 72°.

283rd Mile

S. 89° 55′ E. on the tangent to the parallel.
Ascend.

	29.70	Top of spur, slope N. E. Thence by stadia measurements, Angle 4 —Rod 13.00 ft. double=2600 ft. × .9951=2587.26 ft. + C.=1.15 ft.=2588.41 ft.=39.21 chs. + 29.70 chs.=68.91 chs.
6850 ft.	68.91	Stadia point on sharp brushy spur, slope N.

Altitude	Chs.	
		Angle 8° + Rod. 8.35 ft. double=1670 ft. × .9806=1637.60 ft. + C.=1.14 ft.=1638.74 ft.=24.82 chs. + 68.91 chs.=93.73 chs.—80.00 chs.=1373 chs. on 284th mile.
6550 ft.	80.00	Comes in dry canon about 300 ft. below top of spur, course N.
		I advance this cor.
		Land, rough and broken.
		Soil, rocky, clay loam, 3rd rate.
		Vegetation, dense oak and aspen brush.

284th Mile.

S. 89° 54′ E. on the tangent to the parallel.

13.73 On top of wall of rim rock, about 200 ft. high, bears N. E. and S. W.

Thence by tape.

7075 ft. 14.00 N. 64 lks. from the tangent,

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 283rd mile cor.

[fol. 4005]

A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 283.175 M. stamped in the center.

Raised a mound of stone, 5 ft. base, 2 ft. high around the post.

Pits impracticable.

A pinon tree 8 ins. dia. bears S. 80° 26′ E. 177 lks. dist. marked N. M., 283.175 M., B. T.

No other trees within limit, suitable for bearing trees.

Volcanic cone at Watervale bears N. 42° 30′ W.

This cor. stands on high, rocky spur.

Alt. 7075 ft.

Temp. 70°.

Thence by stadia.

Angle 11°—Rod 12.60 ft. double=2520 ft. × .9636=2428.27 ft. + C.=1.13 ft.=2429.40 ft.=36.81 chs. + 14.00 chs.=50.81 chs.

18.00 Foot of wall about 75 ft. high bears N. W. and S. E.

Thence along N. slope in dense brush.

27.00 Springs just North of line.

50.81 Stadia point, thence by tape.

6850 ft. 70.00 Bottom of ravine course N.; ascend.

Difference between measurements of 29.19 chs. by 2 sets of chainmen is 2 lks., position of middle point,

Altitude Chs.

By 1st set 29.26 chs.
By 2nd set 29.18 chs., the mean of which is 29.19 chs. + 36.81 chs., stadia=66.00 chs. from last cor. + 14.00 chs.=80.00 chs.

6500 ft. 80.00 N. 76 lks. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 284th mile cor.
A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 284th M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post.
[fol. 306] Pits impracticable.
A pinon tree 10 ins. dia. bears N. 60° E. 57 lks. dist. marked Colo., 284 M. B. T.
A pine tree 12 ins. dia. bears S. 41° W. 283 lks. dist. marked N. M., 284 M., B. T.
No other trees within limit suitable for bearing trees.
Extreme N. end of rocky point of mesa bears N. 69° 26′ W. about 1 mile dist.
Land, rough, mountainous.
Soil, rocky clay loam. 3rd rate.
Vegetation, oak, aspen and wild cherry brush; scattering pine and aspen timber.
Alt. 6500 ft.
Temp. 54°.

May 27th, 1903.

I examine the transit and find it in adjustment; compare the steel tapes, with the standard and find them all of correct length.

285th Mile

S. 89° 53′ E. on the tangent to the parallel.
Ascend along brushy N. slope.
By stadia measurement,
Angle 3° + 4.00 ft. double=800 ft. × .9973=797.84 ft. + C.=1.15 ft.=798.99 ft.=12.10 chs.
12.10 Stadia point.
Angle 4° + Rod 7.95 ft. double=15.90 ft. × .9951=1582.21 ft. + C.=1.15 ft.=1583.36 ft.=23.99 chs. + 12.10 chs.=36.09 chs.
36.09 Stadia point,
Angle 0° Rod 5.00 ft. double=1000 ft. + C.=1.15 ft.=1001.15 ft.=15.17 chs. + 36.09 chs.=51.26 chs.

Altitude	Chs.	
	51.26	Stadia point. Angle 16 + Rod 7.30 ft. double = 1460 ft. × .9240 = 1349.04 ft. + C = 1.10 ft. = 1350.14 ft. = 20.45 chs. + 51.26 chs. = 71.71 chs.
	70.00	Foot of rim rock wall about 200 ft. high, bears N. E. and S. W.; ascend.
[fol. 307]	71.30	Top of wall of westerly edge of high mesa; the north end of the Raton plateau, bears N. E. and S. W. Leave brush, bears N. E. and S. W.
6950 ft.	71.71	Stadia point, thence by tape measurement. Across mesa.
6950 ft.	80.00	N. 92 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 285th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 285 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post. Pits impracticable. Volcanic cone at Watervale bears N. 59° 20′ W. North face of N. E. salient of Raton plateau bears N. 76° 38′ W. This cor. stands on the mesa. Land, montainous. Soil, rocky, sand and clay, 3rd rate. Vegetation, grass on mesa; dense oak and aspen brush on slope. Alt. 6950 ft. Temp. 60°.

286th Mile

S. 89° 53′ E. on the tangent to the parallel
Across high mesa.

	56.00	Dry ravine about 100 ft. deep, course N. Drops over wall about 15.00 chs. N. Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point, By 1st set 80.02 chs., By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
6900 ft.	80.00	N. 110 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 286th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 286 M. stamped in the center. Dug pits

[fol. 308]

Altitude	Chs.	
		36x36x18 ins. N., S., E. and W. of the cor. 6 ft. dist.
		Raised a mound of earth, 5 ft. base 2 ft. high around the post.
		Land, high plateau.
		Soil, sandy, 3rd rate.
		Vegetation, grass.
		Alt. 6900 ft.
		Temp. 62°.

287th Mile

		S. 89° 52′ E. on the tangent to the parallel.
6900 ft.	15.30	East edge of mesa, bears N. E. and S. W.
		Descend, thence by stadia measurement,
		Angle 9°—Rod 6.36 ft. double=1272 ft.×.9755=1240.84 ft.+C.=1.13 ft.=1241.97 ft.=18.82 chs.+15.30=34.12 chs.
	34.12	Stadia point,
		Angle 11°—Rod 6.80 single=680 ft.×.9636=655.25 ft.+C.=1.13 ft.=656.38 ft.=9.94 chs.+34.12 chs.=44.06 chs.
	44.06	Stadia point,
		Angle 5°—Rod 10.10 ft. double=2020 ft.×.9924=2004.65 ft.+C.=1.14 ft.=2005.79 ft.=30.39 chs.+44.06 chs.=74.45 chs.
	74.45	Stadia point, thence by tape measurement,
6700 ft.	80.00	N. 129 lks. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 287th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 287 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A point of rocks on N. side of rocky butte bears S. 65° 25′ E. about ¾ of a mile dist. N. face wall of mesa, bears N. 83° 45′ W. about ¾ of a mile dist.
		Cone-shaped peak bears S. 10° 56′ about 7 miles dist.
[fol. 309]		This cor. stands on S. E. slope West of R. R. track at the foot of Raton mountains.
		Land, mountainous.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass, scattering pinon timber; and oak brush.
		Alt. 6700 ft.
		Temp. 72°.

Altitude	Chs.	288th Mile
		S. 89° 52′ E. on the tangent to the parallel. Descending; leave the Raton Mountains, bears N. W. and S. E.
	4.75	Colorado & Southern R. R. track bears N. E. and S. W.
		Emery Gap station about 2 miles S. W.
6600 ft.	24.00	Dry arroyo, course N. E., ascend.
	50.80	Top of spur, slope N.; descend gradually.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
		By 1st set 80.04 chs.,
		By 2nd set 79.96 chs.; the mean of which is 80.00 chs.
6750 ft.	80.00	N. 150 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 288th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S., and 288 M. stamped in the center. Raised a mound of stone. 5 ft. base, 2 ft. high, around the post.
		Pits impracticable.
		No bearings.
		Land, rolling.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass; sage and scattering oak brush.
		Alt. 6750 ft.
		Temp. 72°.

289th Mile

[fol. 310]		S. 89° 51′ E. on the tangent to the parallel. Descend.
6600 ft.	41.00	Bottom of dry ravine, about 100 ft. deep, course N.
		Ascend.
6675 ft.	51.00	Top of spur, slope S. N. side of round hill; descend.
6650 ft.	60.00	Foot hills, bears N. W. and S. E.
		Thence over nearly level plain.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
		By 1st set 80.05 chs.;
		By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
6650 ft.	80.00	N. 172 lks. from the tangent,

Altitude	Chs	
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 289th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 289 M. stamped in the center.
		Dug pits 36x36x18 ins. N., S., E. and W. of cor. 6 ft. dist.
		Raised a mound of earth, 5 ft. base 2 ft. high around the post.
		No bearings.
		Land, rolling and plain.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass, sage and scattering oak brush on rolling land; and grass and soapweed on plain.
		Alt. 6650 ft.
		Temp. 65°.

290th Mile

		S. 89° 50′ E. on the tangent to the parallel.
		Over nearly level land.
	25.25	Darling's 43rd mile cor. bears South 5.18 chs. dist.
		A sandstone 22x8x4 ins. marked C. on N., 43 M. on E., N. M. on S. and 1868 on W. faces.
[fol. 311]		I destroyed this cor. The first one I have been able to find East of his 52nd mile cor.
	30.00	Enter oak brush, bears N. and S.
	54.00	Bottom of Long Canon, about 75 ft. deep.
		Dry bed 20 lks. wide, course S. E.; ascend.
	65.00	On N. wall of canon bears N. W. and S. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 12 lks., position of middle point,
		By 1st set 80.06 chs.
		By 2nd set 79.94 chs.; the mean of which is 80.00 chs.
6600 ft.	80.00	N. 196 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 290th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 290 M. stamped in the center.
		Raised a mound of stone, 5 ft. base, 2 ft. high around the post. Pits impracticable. A round peak on mesa bears S. 16° W.
		South side of butte E. of R. R. track bears S. 82° W.

Altitude Chs

N. salient of Raton plateau bears N. 85¾ W.
Land, gently rolling, except where broken by canon.
Soil, sandy loam, and rocky, 3rd rate.
Vegetation, grass and oak brush.
Alt. 6600 ft.
Temp. 60°.

May 28th, 1903.

Having previously made a careful examination of the transit and found it in perefect adjustment.
At the point for the 290th mile cor.
At 3h 05m A. M., l.m.t., May 29th, 1903, I observe Polaris at Eastern elongation and mark a point in the line so determined on a plug driven in the ground North of my station.
[61, 312] At 7h 15m A. M. May 29th, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian thus determined on a plug driven in the ground N. of my station.
The magnetic bearing of this meridian is N. 12° 45′ W.
This gives the magnetic variation 12° 45 E.
I now lay off an angle of 90° from this meridian from the North to the East for the tangent to the parallel.
In all these observations and the subsequent turning of angles, the mean of four sights was used with the telescope reversed at each sight.
This line was run through to the 7th astronomical station, at the 325th mile cor., where the falling was found to be 10.52 chs., south of the 37th parallel, as determined by astronomical observations on the nights of Nov. 3rd, 4th and 7th, 1902. This being 5.92 chs. outside the limit of 3″ are allowed by the Hon. Commissioner, the line was corrected from this point, at the rate of 18.4ks. N. per mile to bring it inside of said limit,—hence the difference in date between the projection of the tangents and the establishment of permanent corners.

291st Mile

East on the tangent to the parallel.
Along North wall of Long Canon.
24.44 On wall of canon, bears N. E. and S. W.

Altitude	Chs.	
		Thence by stadia measurement.
		Angle 0° Rod 9.20 double=1840 ft.+C.=1.15 ft.=1841.15 ft.=27.90 chs.+24.44 chs.=52.34 chs.
	38.50	Bottom of Long Canon about 150 ft. deep, course NE.
	52.34	Stadia point on south wall, bears N. E. and S. W.
[fol. 313]		Thence by tape measurement
	61.00	Enter timber and brush, bears N. and S.
		Difference between measurements of 52.10 chs. by 2 sets of chainmen is 6 lks., position of middle point,
		By 1st set 52.13 chs.,
		By 2nd set 52.07 chs.; the mean of which is 52.10 chs.+27.90 chs., stadia=80.00 chs.
6700 ft.	80.00	N. .76 of a link + Correction 18 lks. N. = 18.76 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 291st mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N.M. on S. and 291 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Pits impracticable.
		A pinon tree 6 ins. dia. bears N. 8½° E. 100 lks. dist. marked Colo., 291 M., B.T.
		A pine tree 18 ins. dia. bears S. 29° E. 150 lks. dist. marked N.M., 291 M., B.T.
		A cedar tree 10 ins. dia. bears S. 43° 30′ W. 124 lks. dist. marked N.M., 291 M., B.T.
		A pinon tree 7 ins. dia. bears N 48½° W. 54 lks. dist. marked Colo., 291 M., B.T.
		This cor. stands on NW. side of rocky ravine, about 30 ft. deep, course NE.
		Alt. 6700 ft.
		Temp. 62°.

292nd Mile

		S. 89° 59′ E. on the tangent to the parallel.
		Descend.
	3.30	Bottom of dry, rocky ravine, course N. E.
	10.00	Leave timber, bears N. and S.
	27.20	On south wall of canon, bears N. W. and S. E.
		Thence by stadia measurement.
		Angle 2°—Rod 11.50 ft. double=23.00 ft.× .9988=2297.24 ft.+C.=1.15 ft.=2298.39 ft.= 34.82 chs.+27.20 chs.=62.02 chs.
6000 ft.	45.00	Bottom of Long Canon, course S. E.

Altitude	Chs.	
	62.02	Stadia point on N. wall on canon, bears N. W. and N. E.
[fol. 314]		Angle 5°—Rod 11.00 double = 2200 ft. × .9924 = 2183.28 ft. + C. = 1.14 ft. = 2184.42 ft. = 33.20 chs. + 62.02 chs. = 95.22 chs.— 80.00 chs. = 15.22 chs. on 293rd mile.
	80.00	Comes on rocky slope of canon wall.
		I advance this cor.
		Land, rough and broken, by deep canon.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, pine and pinon timber.
		Oak, aspen and pinon brush.

293rd Mile

		S. 89° 59' E. on the tangent to the parallel.
	15.22	Stadia point, thence by tape measurement.
6300 ft.	16.00	N. 4 lks. + Correction 36 lks. N. = 40 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 292nd mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., S. M. on S. and 292.2 M. stamped in the center.
		Raised a mound of stone 5 ft. base, 2 ft. high around the post.
		Pits impracticable.
		This cor. on rocky S. E. slope in canon, about 100 ft. above bottom.
		No bearing trees.
		Alt. 6300 ft.
		Temp. 70°.
	23.00	Darling's 40th mile cor. bears S. about 5 chs. dist.
		A sandstone 18x10x7 ins. in stone mound, marked C. on N., 40 M. on E., N. M. on S. 1868 on W.
		I destroyed this cor.
	26.10	Stadia measurement from this point.
		Angle 7° + Rod 9.40 ft. double = 1880 ft. × .9851 = 1851.99 ft. + C. = 1.14 ft. = 1853.13 ft. = 28.07 chs. + 26.10 chs. = 54.17 chs.
	47.00	Bottom Long Canon, where it is joined by canon
[fol. 315]		from S. W.; course N. E.
	54.00	On wall of canon above 300 ft. above bottom, bears N. and S. Enter pinon timber, bears N. and S.
	54.17	Stadia point, thence by tape measurement.

Altitude	Chs.	
	61.10	Leave timber, bears N. and S. Difference between measurements of 35.93 chs. by 2 sets of chainmen is 2 lks., position of middle point. By 1st set 35.94 chs., By 2nd set 35.92 chs.; the mean of which is 35.93 chs. + 28.07 chs., stadia = 64.00 chs. from last cor. + 16.00 chs. = 80.00 chs.
6300 ft.	80.00	N. 7 lks. + Correction 54 lks. N. = 61 lks. N. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 293rd mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 293 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable. No trees within limit. Land, rough and broken. Soil, rocky and sandy, 3rd rate. Vegetation, pinon timber; oak and pinion brush.

294th Mile

		S. 89° 58' E. on the tangent to the parallel.
	15.00	Bottom dry ravine about 100 ft. deep, course N.
6300 ft.	38.50	On south wall of Long Canon, bears N. W. and S. E. Thence by stadia. Angle 10°—Rod 7.40 double = 1480 ft. × .9698 = 1433.35 ft. + C. = 1.13 ft. = 1436.43 ft. = 21.76 chs. + 38.50 chs. = 60.26 chs.
	60.26	Stadia point, thence by tape measurement.
[fol. 316]	75.00	Bottom of Long Canon, in creek bed, water in holes in bend, from N. W. to N. E. Difference between measurements of 58.24 chs. by 2 sets of chainmen is 6 lks., position of middle point. By 1st set 58.27 chs., By 2nd set 58.21 chs.; the mean of which is 58.24 chs. + 21.76 chs., stadia = 80.00 chs.
6300 ft.	80.00	N. 12 lks. + Correction 72 lks. N. = 84 lks. N. from the tangent. This point for cor. comes in bed of creek, impracticable to establish at that point. I therefore, set it South 115 lks. from its true place.

Altitude	Chs.	
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for witness cor. for 294th mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and W. C. 294 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A cottonwood tree 10 ins. dia. bears S. 83½° E. 382 lks. dist., marked N. M., W. C. 294 M., B. T.
		A cottonwood tree 6 ins. dia. bears N. 64° W. 225 lks. dist. marked Colo., W. C. 294 M., B. T.
		No other trees suitable for bearing trees.
		This witness cor. stands in canon on S. bank of the creek.
		Land, rough and broken.
		Soil, rocky, sandy loam, 3rd rate.
		Vegetation, scrub cedar and pinion and cottonwood timber; oak, willow and soft maple brush.
		Alt. 6000 ft.
		Temp. 75°.

295th Mile

		S. 89° 57′ E. on the tangent to the parallel.
[fol. 317]	3.90	Creek in Long Canon, water in holes, course S. E.
	18.00	Same creek, dry bed 20 lks. wide, course N. E.
	38.00	Cabin about 2 chs. S.
5900 ft.	40.00	Same creek, water in holes, course S. E.
6050 ft.	65.00	On rocky spur, slope S. about 150 ft. above creek bottom.
		Descend.
	75.00	Foot of hill bears N. E. and S. W.; leave timber and brush.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point.
		By 1st set 80.05 chs.
		By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
5900 ft.	80.00	N. 19 lks. + Correction 90 lks. N. = 109 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 295th mile cor.

Altitude	Chs.	
		A brass cap on the top of the pipe has raised letters, Cole, on N., N. M. on S. and 295 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., E., S. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base, 2 ft. high around the post.
		This cor. on flat north of creek.
		No bearing trees.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, pinon and aspen timber. Aspen, oak and willow brush.
		Alt. 5900 ft.
		Temp. 75°.

296th Mile

		S. 89° 57' E. on the tangent to the parallel.
	21.15	On low spur, slope S.
		Stadia measurement from this point.
[fol. 318]		Angle 15° — Rod 6.50 double = 1.300 ft. × 9330 = 12132.90 ft. + C. = 1.11 ft. 12134.01 ft. = 18.39 chs. + 21.15 chs. = 39.54 chs.
	21.80	Darling's 376th mile cor., bears S. 1.94 chs. dist. A sandstone 18 x 10 x 8 ins. in stone mound. I destroyed this cor. The first one I have been able to find since passing his 40th mile.
5800 ft.	26.00	Bottom of rocky canon, comes from N. E. Ascend steep over rocks and brush.
	38.50	Foot of wall about 75 ft. high, bears N. E. and S. W.
	39.54	Top of wall, bears N. E. and S. W. Stadia point, thence by tape measurement; ascend.
6250 ft.	49.00	Top of mesa bears N. and S.; enter scattering timber and brush, bears N. and S.
		Difference between measurements of 61.61 chs. by 2 sets of chainmen is 4 lks., position of middle point.
		By 1st set 61.63 chs.
		By 2nd set 61.59 chs.; the mean of which is 61.61 chs. + 18.39 chs., stadia = 80.00 chs.
6200 ft.	80.00	N. 27 lks. + Correction 108 s. N. = 135 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 296th mile cor.

Altitude	Chs.	
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 296 M. stamped in the center. Raised a mound of stone 5 ft. base 2 ft. high around the post. Lone tree on N. end of long butte bears N. 80° 28′ E.
		~~E. face of wall across canon bears S. 2° 23′ E.~~
		This cor. stands on high mesa at head of little gulch, course S.
		Land, rolling and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, grass; scattering pinon and cedar timber; oak and pinon brush.
[fol. 319]		Alt. 6200 ft.
		Temp. 76°.

297th Mile

S. 89° 56′ E. on the tangent to the parallel.
Over gently rolling table or mesa land.

	24.00	Parling's 36th mile cor., bears S. 1 ch. dist. A sandstone 16 x 8 x 6 ins. marked C. on N. 36 M. on E., N. M. on S., and 1868 on W. faces. I destroyed this cor.
	26.00	Leave oak brush, bears N. and S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 80.01 chs.,
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
6150 ft.	80.00	N. 37 lks. + Correction 126 lks. N. = 163 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 297th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 297 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., E., S. and W. of cor. 6 ft. dist. Raised a mound of earth 5 ft. base 2 ft. high around the post.
		A round peak on mesa bears S. 48° W. about 10 chs. dist.
		A timbered cone on high ridge bears N. 52° E. about 6 miles dist.
		Land, gently rolling mesa.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and soapweed.
		Patches of oak brush on W. end of mile.
		Alt. 6150 ft.
		Temp. 75°.

Altitude	Chs.	
		298th Mile
		S. 89° 55′ E., on the tangent to the parallel.
		Over nearly level mesa.
	24.30	Darling's 35th mile cor., 70 lks. S.
		I destroyed this cor.
[fol. 320]		
	59.85	Wagon road bears N. W. and S. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.
6150 ft.	80.00	N. 49 lks. + Correction 144 lks., N. = 193 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 298th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 298 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
		Pits impracticable.
		Top of round peak on mesa bears S. 51° W. about 30 miles dist.
		North salient of Raton plateau bears N. 88° W.
		Land, mesa.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass.
		Alt. 6150 ft.
		Temp. 70°.
		299th Mile
		S. 89° 55′ E. on the tangent to the parallel.
	9.10	On low spur, slope S., thence by stadia measurement.
		Angle 7° + Rod 7.20 ft. double = 1440 ft. × .9851 = 1418.54 ft. + C. = 1.14 ft. = 1419.68 ft. = 21.51 chs. + 9.10 chs. = 30.61 chs.
	24.30	Darling's 34th mile cor. on this line. I destroyed this cor.
	26.50	Foot of lava wall bears N. and S.
6350 ft.	30.61	Stadia point on top of wall 100 ft. high, bears N. and S.
		Top of high butte that extends N. about ½ mile and S. about 15 chs. (Hardesty Butte.)
6350 ft.	38.08	On top of wall bears N. and S.; east side top of long butte.
		Thence by stadia measurement; descend.
[fol. 321]		Angle 11° — Rod 6.65 ft. double = 1330 × .9636 = 1281.59 ft. + C. = 1.13 ft. = 1282.72 ft. = 19.43 chs. + 38.08 chs. = 57.51 chs.
	57.51	Stadia point,

Altitude	Chs.	
		Angle 9° — Rod 7.90 ft. single = 790 ft. × .9755 = 682.85 ft. + C. = 1.13 ft. = 683.98 ft. = 10.36 chs. + 57.51 chs. = 67.87 chs.
	64.00	Dry gulch, course N. E.
	64.50	Graded wagon road, bears N. E. and S. W.
	67.87	Stadia point, on spur, slope N. E.
		Angle 9° — Rod 10.70 ft. double = 2140 ft. × .9755 = 2087.57 ft. + C. = 1.13 ft. = 2088.70 ft. = 31.64 chs. + 67.87 chs. = 99.51 chs. — 80.00 chs. = 19.51 chs. on 300th mile.
	80.00	Comes on rocky and brushy E. slope.
		I advance this cor.
		Land, rough and mountainous, broken by lava cliffs.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scattering cedar and pinon timber. Pinon and oak brush.

300th Mile.

		S. 89° 54′ E. on the tangent to the parallel.
	19.51	Stadia point, thence by tape.
5500 ft.	20.00	N. 65 lks. + Correction 166 lks. N. = 231 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 299th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 299.25 M. stamped in the center. Raised a mound of stone 5 ft. base, 2 ft. high around the post. Pits impracticable.
		A pinon tree 10 ins. dia. bears S. 4° 20′ E. 132 lks. dist. marked N. M., 299.25 M., B. T.
		A pinon tree 12 ins. dia. bears S. 70½° E. 395 lks. dist. marked N. M., 299.25 M., B. T.
		George Hardesty's windmill in front of his house bears N. 35° E. about 20 chs. dist.
[fol. 322]		This cor. stands on N. slope near foot of hill.

April 22nd, 1903.

		I examine the transit and compare the steel tapes with the standard, find the instrument in adjustment and tapes of correct length.
	24.00	Darling's 33rd mile cor. 1 ch. N. of tangent, a X mark on a rock and a stone monument beside it.
		I destroyed this cor.

Altitude	Chs.	
5450 ft.	27.00	Foot of hills; leave timber, bears S. and N. about 3 chs. then N. W., thence across little valley.
	28.50	Deserted cabin about 3 chs. S.
	31.30	Dry bed of water course, 30 lks. wide, course S.
	33.25	Wagon road bears N. and S.
5450 ft.	60.00	Foot of hills bears N. E. and S. W.; leave valley, enter brush, ascend.
		Difference between measurements of 60.00 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 60.01 chs.
		By 2nd set 59.99 chs.; the mean of which is 60.00 chs., from last cor. + 20.00 chs. = 80.00 chs.
5806 ft.	80.00	N. 76 lks. + Correction 180 lks. N. = 256 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 300th mile cor.
		A brass cap on the top of the pipe has raised letters, Cole, on N., N. M. on S. and 300 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post. No bearings.
		This cor. stands on steep rocky N. W. slope.
		Land, valley and rough hills.
		Soil, sandy loam, 2nd and 3rd-rate.
		Vegetation, grass and oak and pinon timber and brush.
[fol. 323]		Alt. 5800 ft.
		Temp. 72°

301st Mile

S. 89° 53' E. on the tangent of the parallel.

	19.00	Bottom of rocky gulch, course N. E.
6100 ft.	23.0	On mesa bears N. E. and S. W.; enter timber and brush, bears N. E. and N. W.
	24.50	Darling's 32nd mile cor. about 2 chs. N. I destroy this cor.
	36.90	Darling's astronomical monument No. 1, 2.10 chs. north of the tangent. Sandstone shaft firmly set 11 x 14 ins. 4 ft. above ground marked Colorado on N. 1868 on E., New Mexico on S. and 37° N. L. on W. faces.
		I destroy this monument.
	42.30	Wire fence bears N. and S. about 1 ch. N. to fence cor., thence fence runs east.

Altitude	Chs.	
	78.00	Bottom of box canon about 150 ft. deep, course S.
	80.00	Comes on slope of canon wall.
		I advance this cor.
		Land, rolling mesa, and broken by canons.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, pine and pinon timber, oak and pinon brush.

302nd Mile

S. 89° 53' E. on the tangent to the parallel, ascend.
Difference between measurements of 88.00 chs. by 2 sets of chainmen is 10 lks., position of middle point,
By 1st set 88.05 chs.,
By 2nd set 87.95 chs.; the mean of which is 88.00 chs. — 80.00 chs. = 8.00 chs. on 302nd mile.

6600 ft.	8.00	N. 94 lks. + Correction 200 lks. N. = 294 lks. N. from the tangent,
		Set an iron pipe 3 ins. dia. 4 ft. long with flange
[fol. 324]		at the bottom 2 ft. in the ground for 301st mile cor.
		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S., and 301.1 M. stamped in the center.
		Raised a mound of stone 5 ft. base 2 ft. high around the post.
		Pits impracticable.
		A pinon tree 6 ins. dia. bears S. 41° W. 293 lks. dist. marked N. M., 301.1 M., B. T.
		A pinon tree 12 ins. dia. bears N. 54° 40' W. 364 lks. dist., marked Colo., 301.1 M., B. T.
		No other trees within limit.
		Leave timber and brush bears N. and S.
		Alt. 6000 ft.
		Temp. 80°.
	24.50	Darling's 31st mile cor. about 2 chs. N.
		I destroy this cor.
	27.00	Top of ridge bears N. E. and S. W.
		Difference between measurements of 72.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
		By 1st set 72.02 chs.,
		By 2nd set 71.98 chs.; the mean of which is 72.00 chs., from last cor. + 8.00 chs. = 80.00 chs.
6050 ft.	80.00	N. 110 lks. + Correction 216 lks. N. = 326 lks. N. from the tangent,

Altitude	Chs.	
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 302nd mile cor.
		A brass cap on the top of the pipe has raised letters, Cole on N., N. M. on S. and 302 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of cor. 67 ft. dist.
		Raised a mound of earth 3 ft. base, 2 ft. high around the post.
		A conical butte on high mesa bears N. 60° 11′ W.
		N. end of Hardesty butte bears N. 83° 58′ W.
		Land, rolling.
[fol. 327]		Soil, sandy loam, 3rd rate.
		Vegetation, grass; scattering pinon timber; oak and pinon brush.
		Alt. 6000 ft.
		Temp. 80°.

303rd Mile

		S. 89° 52′ E. on the tangent to the parallel.
	24.50	Darling's 302nd mile cor. about 2 chs. N.
		I destroyed this cor.
6100 ft.	34.00	Top of ridge, bears N. E. and S. W.
	64.00	Thence by stadia measurement; enter brush and scattering timber, bears N. and S.
		Angle 8° — Rod 9.20 ft. double = 1840 ft. × .9806 = 1804.30 ft. + C. = 1.14 ft. = 1805.44 ft. = 27.35 chs. + 64.00 chs. = 91.35 chs. — 80.00 chs. = 11.35 chs. on 304th mile.
	71.00	Bottom of dry canon, 300 ft. deep, course N. E.
	80.00	Comes in rocky and brushy hillside.
		I advance this cor.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, grass; cedar and pinon timber.
		Oak brush.

304th Mile

		S. 89° 52′ E. on the tangent to the parallel.
	11.35	Stadia point, thence by tape measurement.
		Difference between measurements of 64.65 chs. by 2 sets of chainmen 8 lks., position of middle point.
		By 1st set 64.69 chs.,
		By 2nd set 64.61 chs.; the mean of which is 64.65 chs. = 12.00 chs. on 304th mile.

Altitude	Chs.	
5800 ft.	12.00	N. 132 lks. + Correction 237 lks. N. = 369 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 305rd mile cor.
[fol. 326]		A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S. and 303.15 M. stamped in the center.
		Raised a mound of stone 5 ft. base, 2 ft. high, around the post.
		Pits impracticable.
		Alt. 5809 ft.
		Temp. 80°.
	13.00	Bottom of dry canon, course N. E.
		Ascend.
	17.00	Top of rocky spur, slope S.; descend.
	22.00	Bottom of main canon, course N.; ascend.
6000 ft.	48.60	On E. wall of canon, bears N. W. and S. E.
	64.40	Top of ridge, bears N. and S.
		Thence by stadia.
		Angle 2° — Rod 12.55 ft. double = 2510 ft. × .9988 = 2506.99 ft. + C. = 1.15 ft. = 2508.14 ft. = 38.00 chs. + 64.40 chs. = 102.40 chs. — 80.00 chs. = 22.40 chs. on 305th mile.
	80.00	Comes in rocky canon 250 ft. deep, course N. W. I advance this cor.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scattering pinon timber: oak and pinon brush.

305th Mile

		S. 89° 51′ E. on the tangent to the parallel
	22.40	On N. wall of canon, bears N. W. and S. E.
		Stadia point, thence by tape measurement.
		Difference between measurements of 54.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
		By 1st set 54.02 chs.,
		By 2nd set 53.98 chs.; the mean of which is 54.00 chs. + 38.00 chs., stadia = 92.00 chs. from last cor. + 12.00 chs. = 104.00 chs. — 80.00 chs. = 24.00 chs. on 305th mile cor.
5900 ft.	24.00	N. 157 lks. + Correction 257 lks. N. = 414 lks. N. from the tangent.
[fol. 327]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 304th mile cor.

Altitude	Chs	
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 304.3 M. stamped in the center.
		Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
		Pits impracticable.
		A cedar tree 10 ins. dia. bears N. 42½° W. 120 lks. dist., marked Colo., 304.3 M., B. T.
		No other trees within limit.
	24.50	Darling's 28th mile cor. about 3 chs. N. from the tangent.
		Difference between measurement of 56.00 chs. by 2 sets of chainmen is 6 lks., position of middle point.
		By 1st set 56.03 chs.,
		By 2nd set 55.97 chs., the mean of which is 56.00 chs., from the last cor. + 24.00 chs. = 80.00 chs.
6000 ft.	80.00	N. 172 lks. + Correction 270 lks. N. = 442 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 305th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 805 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable.
		North end of Hardesty butte bears N. 87¼° W.
		Black Peak bears S. 76½° W.
		Land, rolling and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, grass; oak brush; and scattering pinon timber.
		Alt. 6000 ft.
		Temp. 79°.

306th Mile

		S. 89° 50′ E. on the tangent to the parallel.
6050 ft. [fol. 328]	12.00	Top of high ridge bears N. E. and S. W.; descend.
	27.09	Top of rocky bluff, bears N. E. and S. E., overlooking Cimarron Valley.
		Thence by stadia measurement.
		Descend.
		Angle 6° — Rod 12.65 double = 2530 ft. × .9891 = 2502.42 ft. + C = 1.14 ft. = 2503.56 ft. = 37.93 chs. + 27.09 chs. = 65.02 chs.

Altitude	Chs.	
	65.02	Stadia point. Angle 2°—Rod 11.20 ft. double=22.40 ft. × .9988=22.37.31 ft. + C=1.15 ft.=22.38.46 ft.
		=33.91 chs. × 65.02 chs.=98.93 chs.—80.00 chs.=18.93 chs. on 307th mile.
	80.00	Comes on rough, rocky and brushy S. E. slope. I advance this cor. Land, rough and broken. Soil, sandy and rocky, 3rd rate. Vegetation, scattering pinon timber; oak and pinon brush.

307th Mile

S. 89° 50′ E. on the tangent to the parallel. Descending.

	18.93	Stadia point, thence by tape measurement,
5600 ft.	20.00	N. 202 lks. + Correction 292 lks. N.=494 lks. N. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 306th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N. N. M. on S. and 306.25 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable.
	42.35	Foot of bluff, enter Cimarron valley, bears N. E. and S. W. Leave brush, bears N. E. and S. W.
[fol. 329]		Difference between measurements of 60.00 chs. by 2 sets of chainmen is 2 lks., position of middle point, By 1st set 60.01 chs., By 2nd set 59.99 chs., the mean of which is 60.00 chs. from last cor. + 20.00 chs.=80.00 chs.
5400 ft.	80.00	N. 221 lks. + Correction 306 lks. N.=527 lks. N. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 307th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S., and 307 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. from the cor. 6 ft. dist. Raised a mound of earth 5 ft. base, 2 ft. high around the post.

Altitude	Chs.	
		A monument of gray, cone-shaped peak in edge of valley bears N. 82° W. about ½ mile dist.
		Point of lava rock on top of sandstone cliff bears N. 38° 30′ W. about 1 mile dist.
		Land, rough slope and valley.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and soapweed in valley; oak and pinon brush on slope.
		Alt. 5400 ft.
		Temp. 80°.

308th Mile

		S. 89° 49′ E. on the tangent to the parallel. Over gently rolling valley land.
	17.00	Cabin about 3 chs. S.
	64.15	Dry bed of Covert Canon Creek, 80 lks. wide, water in holes, course S.
		Difference between measurements of 80.99 chs. by 2 sets of chainmen is nothing, the mean is 80.00 chs.
5300 ft.	80.00	N. 247 lks. + Correction 324 lks. N.=571 lks. N. from the tangent,
[fol. 330]		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for 308th mile cor.—
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 308 M. stamped in the center.
		Dug pits 36 x 36 x 18 ins. S., N., E. and W. from this cor. 6 ft. dist.
		Raised a mound of earth 5 ft. base, 2 ft. high around the post.
		Monument on round, red butte in valley bears N. 5° 2′ E.
		S. salient of N. bluff bears N. 75° 52′ E.
		Monument on gray cone in valley bears N. 53° 33′ W.
		This cor. stands under E. and W. wire fence that is supposed to be on the Darling line, though I have not been able to find corners along this part of the valley bearing the Darling marks.
		Land, gently rolling.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and cactus.
		Alt. 5300 ft.
		Temp. 76°.

Altitude Chs.

June 23rd, 1903

I examine the transit and compare the steel tapes with the standard, find all correct and in adjustment.

309th Mile

S. 89° 48′ E. on the tangent to the parallel. Over gently rolling land.

78.50 Dry gulch, course S. E.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,

By 1st set 80.01 chs.,

By 2nd set 79.99 chs., the mean of which is 80.00 chs.

5275 ft. 80.00 N. 275 lks. + Correction 342 lks. N.=617 lks. N. from the tangent,

[fol. 331] Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 309th mile cor.

A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S., and 309 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post.

Pits impracticable.

A cedar tree 14 ins. dia bears S. 6° 20′ W. 705 lks. dist. marked N. M., 309 M., B. T.

A cedar tree 14 ins. dia. bears S. 29° W. [illegible] lks. dist. marked N. M., 309 M., B. T.

Land, gently rolling.

Soil, sandy loam, 3rd rate.

Vegetation, grass and cactus.

Alt. 5275 ft.

Temp. 70°.

Having previously examined the transit and found it to be in perfect adjustment,

At the point for the 309th mile cor.

On June 2nd, 1903, at 2h 49m A. M., l. m. t., I observe Polaris at Eastern elongation, and mark a point in the line so determined on a plug driven in the ground N. of my station. At 6h 30m A. M., June 2nd, 1903, I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station. The magnetic bearing of this meridian is N. 12° 40′ W.

Altitude Chs.

This gives magnetic variation 12° 40′ E.
I now lay off an angle of 90° from this meridian from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

310th Mile

East on the tangent to the parallel.
[fol. 332] Over rolling land, along North edge of Cimarron Valley.
Difference between measurments of 80.00 chs. by 2 sets of chainmen is 4 lks.; position of middle point,
By 1st set 80.02 chs.
By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
5300 ft. 80.00 N. .76 of a link + Correction 360 lks. N. = 360.76 lks. N. from the tangent.
Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 310th mile cor.
A brass cap on the top of the pipe has raised letters, Colo. on N., N. M., on S. and 310 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
Pits impracticable.
A cedar tree 12 ins. dia. bears S. 46° W. 530 lks. dist., marked N. M., 310 M., B. T.
No other trees within limit.
Land, rolling.
Soil, sandy and rocky, 3rd rate.
Vegetation, scattering pinon, grass and cactus.
Alt. 5300 ft.
Temp. 72.

311th Mile

S. 89° 59′ E. on the tangent to the parallel.
Over rolling land, at foot of bluffs.
Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks., position of middle point,
By 1st set 80.03 chs.

Altitude	Chs	
		By 2nd set 79.97 chs.; the mean of which is 80.00 chs.
5200 ft.	80.00	N. 3 lks. + Correction 378 lks. N. = 381 lks. N. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 311th mile cor.

[fol. 333]

A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 311 M. stamped in the center.

Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.

Pits impracticable.

A cedar tree 16 ins. dia. bears N. 31½° E. 227 lks. dist. marked Colo., 311 M., B. T.

A cedar tree 12 ins. dia. bears S. 70° E. 190 lks. dist. marked N. M., 311 M., B. T.

No other trees within limit.

Land, rolling.

Soil, sandy and rocky, 3rd rate.

Vegetation, grass; cactus and scattering pinon timber and brush.

Alt. 5200 ft.

Temp. 74°.

312th Mile

S. 89° 59' E. on the tangent to the parallel.

Over rolling land, at foot of bluffs N. side of Cimarron Valley.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,

By 1st set 80.02 chs.,

By 2nd set 79.98 chs.; the mean of which is 80.00 chs.

5150 ft.	80.00	N. 7 lks. + Correction 396 lks. N. = 403 lks. N. from the tangent.

Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 2 ft. in the ground for the 312th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., N. M. on S., and 312 M. stamped in the center.

Raised a mound of stone, 5 ft. base 2 ft. high, around the post.

Pits impracticable.

Land, rolling.

[fol. 334]

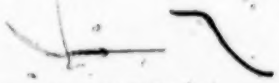
Soil, sandy and rocky, 3rd rate.

Altitude	Chs.	
		Vegetation, grass; cactu and scattering pinon timber and brush.
		Alt. 5150 ft.
		Temp. 78.

313th Mile

		S. 89° 58′ E. on the tangent to the parallel.
		Stadia measurement.
		Angle 6° Rod 8.90 double = 1780 ft. × .9891 = 1760.60 ft. + C. = 1.14 ft. = 1761.74 ft. = 26.69 chs.
5150 ft.	18.75	Foot of bluffs bears N. W. and S. E.; leave Cimarron Valley, ascend over broken rock.
	26.69	On spur, slope S.
		Stadia point.
		Angle 5° + Rod 8.80 ft. double = 1760 ft. × .9924 = 1746.62 ft. + C. = 1.14 ft. = 1747.76 ft. = 26.48 chs. + 26.69 chs. = 53.17 chs.
	40.00	James McCash's house, about 50 chs. S. on river bottom.
		Orchard and alfalfa field.
	53.17	Stadia point, on spur, slope S. E.
		Angle 11° + Rod 9.20 ft. double = 1840 ft. × .9636 = 1773.02 ft. + C. = 1.13 ft. = 1774.15 ft. = 26.88 chs. + 53.17 chs. = 80.05 chs.—.05 chs. = 80.00 chs.
	68.00	Bottom of rocky gulch, course S. E.
	77.00	Foot of lava wall about 200 ft. high, bears N. W. and S. E.
	79.44	On top of lava wall about 700 ft. above the valley, bears N. W. and S. E.
5850 ft.	80.00	N. 12 lks. + Correction 414 lks N. = 426 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 313th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 313 M. stamped in the center.
		Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
[fol. 335]		Pits impracticable.
		A volcanic peak bears S. 62° 15′ W. about 30 miles dist.
		A gray cone of sandstone bears S. 19° 45′ E. about 3 miles dist.
		This cor. stands on top of high bluff.
		Land, rough and broken.

Altitude	Chs.	
		Soil; sandy and rocky, 4th rate. Vegetation, scattering oak and pinon brush. Alt. 5850 ft. Temp. 80°.



314th Mile

		S. 89° 57′ E. on the tangent to the parallel. Across mesa.
	23.54	Darling's 19th mile bears North 5.86 chs. The first cor. bearing the Darling marks I have found East of his 28th mile cor. I destroyed this cor.
	30.12	On E. wall of mesa, bears N. W. and S. E. Thence by stadia measurement, Angle 12° — Rod 9.65 ft. double — 1930 ft. × .9568 = 1846.62 ft. + C. = 1.12 ft. = 1847.74 ft. = 27.99 chs. + 30.12 chs. = 58.11 chs.
	58.11	Stadia point, Angle 5° — Rod 9.44 single = 944 ft. × .9924 = 936.83 + C. = 1.14 ft. = 937.97 ft. = 14.21 chs. + 68.11 chs. = 72.32 chs.
	72.32	Stadia point, thence by tape measurement.
5330 ft.	78.00	Dry bed of stream, bottom of Jesus Canon, 50 lks. wide, course S. E.; ascend.
5350 ft.	80.00	N. 19 lks. + Correction 432 lks. N. = 451 lks. N. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground, for the 314th mile cor. A brass cap on the top of the pipe has raised letters: Colo. on N., N. M. on S. and 314 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post. This cor. on West edge of rocky gulch, that comes from N. E.
[fol. 336]		Land, rough and broken. Soil, sandy and rocky, 3d rate. Vegetation, scattering pinon timber; oak and aspen brush. Alt. 5350 ft. Temp. 80°.

315th Mile

		S. 89° 57′ E. on the tangent to the parallel. Stadia measurement, Angle 13° + Rod 9.00 ft. double = 1800 ft. × .9491 + 1708.92 ft. + C. = 1.12 ft. = 1710.04 ft. = 25.91 chs.

Altitude	Chs.	
	.20	Bottom of rocky gulch, course S. W.; astend.
5830 ft.	25.91	Stadia point on wall of canon, bears N. W. and S. E. about 500 ft. above bottom of canon.
		Enter scattering cedar and pinon timber, bears N. W. and S. E.
		Thence by tape measurement.
	80.00	Comes in head of rocky canon, course S.
		I advance this cor.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, scattering cedar and pinon timber; oak, pinon and cedar brush.

316th Mile

S. 89° 56′ on the tangent to the parallel.
Difference between measurements of 62.09 chs. by 2 sets of chainmen is 6 lks., position of middle point.
By 1st set 62.12 chs.,
By 2nd set 62.06 chs.; the mean of which is 62.09 chs. + 25.91 chs., stadia = 88.00 chs. — 80.00 chs. = 8.00 chs. on 316 mile.

5800 ft.	8.00	N. 28 lks. + Correction 452 lks. N. = 480 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 315th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 315.1 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high around the post.
[fol. 337]		Pits impracticable.
		A pinon tree 7 ins. dia. bears N. 59° 30′ W. 68 lks. dist. marked Colo., 315.1 M., B. T.
		A pinon tree 5 ins. dia. bears S. 1° W. 86 lks. dist., marked N. M., 315.1 M., B. T.
		No other trees within limit.
		Alt. 5800 ft.
		Temp. 75°.
5800 ft.	21.91	On wall of canon, bears N. W. and S. E.
		Thence by stadia.
		Angle 18° — Rod 7.90 double = 1580 ft. × .9045 = 1429.11 ft. + C. = 1.09 ft. = 1430.20 ft. = 21.67 chs. + 21.91 chs. = 43.58 chs.
	23.00	Foot of wall about 300 ft. high, bears N. W. and S. E.
	43.58	Stadia point,

Altitude	Chs.	
		Angle 2° — Rod 9.75 ft. double = 1950 ft. × .9988 = 1947.66 ft. + C. = 1.15 ft. = 1948.81 ft. = 29.52 chs. + 43.58 chs. = 73.10 chs.
5200 ft.	53.00	Dry bed of stream 30 lks. wide, course S. E. Bottom of Flat-Head Canon about 600 ft. below last cor. ascend.
	73.10	On low spur, slope S. W.; ascend. Angle 20° + Rod 7.45 double = 1490 ft. × .8830 = 1315.67 ft. + C. = 1.08 ft. = 1316.75 = 19.95 chs. + 73.10 chs. = 93.05 chs. — 80.00 chs. = 13.05 chs. on the 317th mile.
	80.00	Comes on rough slope of Canon wall. I advance this cor. Land, rough and broken. Soil, sandy and rocky, 3rd rate. Vegetation, scattering cedar and pinon timber: oak, pinon and cedar brush.

317th Mile

S. 89° 55′ E. on the tangent to the parallel.

	10.00	Foot of wall about 200 ft. high, bears N. E. and S. W.
	13.05	Stadia point on top of canon wall, bears N. E. and S. W.
[fol. 338]		Thence by tape measurement.
5775 ft.	16.00	N. 39 lks. + Correction 172 lks. N. 511 lks. N. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flange at the bottom on bed rock for 316th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 316.2 M. stamped in the center. Raised a mound of stone 5 ft. base 2½ ft. high around the post. Pits impracticable. This cor. stands in brush. No trees within limit, suitable for bearing trees. Land, rough and broken. Soil, sandy and rocky, 3rd rate. Vegetation, scattering cedar and pinon timber. Oak, cedar and pinon brush. Alt. 5775 ft. Temp. 70°.
5760 ft.	43.00	Brow of bluff, bears N. W. and S. E.; descend Difference between measurements of 64.00 chs by 2 sets of chainmen is 8 lks., position of middle point.

Altitude	Chs.	
		By 1st set 64.04 chs. By 2nd set, 63.96 chs., the mean of which is 64.00 chs., from last cor. + 16.00 chs. = 80.00 chs.
5400 ft.	80.00	N. 49 lks. + Correction 486 lks. N. = 535 lks. N. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 317th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S., and 317 M. stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable. No bearing trees. Land, rough and broken.
[fol. 339]		Soil, rocky and sandy, 3rd rate. Vegetation, oak, cedar and pinon brush. Alt. 5400 ft. Temp. 70°.

318th Mile

		S. 89° 55′ E. on the tangent to the parallel. Ascend.
5600 ft.	30.00	On mesa, bears N. and S.
	36.30	East edge of mesa, bears N. W. and S. W.; descend.
		To [illegible] by stadia measurement. Angle 8° — Rod 9.60 ft. double = 1920 ft. × .9896 = 1940.59 ft. + C. = 1.15 ft. = 1941.74 ft. = 28.96 chs. + 36.30 chs. = 65.26 chs.
	65.26	Stadia point. Angle 8° — Rod 6.20 ft. double = 1240 ft. × .9806 = 1215.94 ft. + C. = 1.14 ft. = 1217.08 ft. = 18.44 chs. + 65.26 chs. = 83.70 chs. — 80.00 chs. = 3.70 chs. on the 319th mile.
	80.00	Comes in dense brush on N. slope. I advance this cor. Land, rough and broken. Soil, rocky and sandy, 3rd rate. Vegetation, oak, cedar and pinon brush; and scattering pinon timber.

Altitude	Chs.	319th Mile
		S. 89° 54' E. on the tangent to the parallel.
	3.70	Stadia point.
		Thence by tape.
5100 ft.	4.00	N. 63 lks. + Correction 505 lks. N. = 568 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 318th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 318.05 M. stamped in the center.
		Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable.
[fol. 340]		A pinon tree 8 ins. dia. bears S. 31¾° E. 94 lks. dist. marked N. M., 318.05 M., B. T.
		A pinon tree 8 ins. dia. bears N. 70° W. 40 lks. dist. marked Colo., 318.05 M., B. T.
		No other trees suitable for bearing trees.
		This cor. stands on spur, slope N. about 75 ft. above bottom of canon.
		Alt. 5190 ft.
		Temp. 70°.
		June 24th, 1903.

I examine the transit and compare the steel tapes with the standard, find all correct and in adjustment.

		Descend.
	22.00	Bottom of Canon, course S. E.
	24.50	Darling's 14th mile cor. bears N. about 6 chs. from the tangent. A sandstone 26x10x8 ins., marked C. on N., 14 M. on E., N. M., on S. and 1868 on W. faces, in mound of stone. I destroyed this cor.
	30.00	Point on spur, slope S. E.
5000 ft.	36.00	Dry bed of stream, 30 lks. wide, course South. Bottom of Miller's Canon.
	49.27	On spur, slope S. Stadia measurement from this point.
		Angle 19° + Rod 8.20 ft. double = 1640 ft. × .8940 = 1466.16 ft. + C. = 1.08 ft. = 1472.25 ft. = 22.23 chs. + 49.27 chs. = 71.50 ft.
	71.50	Stadia point on wall of canon about 600 ft. above bottom of canon, bears N. E. and S. W.

Altitude	Chs.	
		Thence by tape measurement.
		Difference between measurements of 53.77 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 53.78 chs.
		By 2nd set 53.76 chs.; the mean of which is 53.77 chs.+22.23 chs., stadia=76.00 chs. from last cor.+4.00 chs.=80.00 chs.
5500 ft. [fol. 341]	80.00	N. 76 lks.+Correction 522 lks. N.=598 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 319th mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 319 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high, around the post Pits impracticable.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd. rate.
		Vegetation, scattering cedar and pinon timber; oak, cedar and pinon brush.
		Alt. 5500 ft.
		Temp. 75°.

320th Mile

		S. 89° 53′ E. on the tangent to the parallel.
5500 ft.	9.70	East edge of mesa bears N. W. and S. E.
		Thence by stadia measurement.
		Angle 12°—Rod 13.00 ft. double=2600 ft.×.9568=2487.68 ft.+C.=1.12 ft.=2488.80 ft.=37.71 chs.+9.70 chs.=47.41 chs.
	44.00	Foot of bluff bears N. W. and S. E. Enter Cimarron valley.
	47.41	Stadia point, thence by tape measurement. Difference between measurements of 42.29 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 42.30 chs.
		By 2nd set 42.28 chs.; the mean of which is 42.29 chs.+37.71 chs. stadia=80.00 chs.
4900 ft.	80.00	N. 92 lks.+Correction 540 ft. N.=632 lks. N. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 320th mile cor.

Altitude	Chs.	
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 329 M. stamped in the center. Dug pits 36x36x18 ins. N., E., S. and W. of the cor. 6 ft. dist.,
		[fol. 342] and raised a mound of earth, 5 ft. base, 2 ft. high, around the post.
		Point of cliff bears N. 14° 25' E. about ½ mile dist.
		Top of sandstone butte in valley bears S. 79° E. about 1 mile dist.
		S. E. salient of cliffs bears S. 14° W. about 1 mile dist.
		Land, rough and broken, and valley.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and cactus in valley; and oak, cedar and pinon brush on slopes.
		Alt. 4900 ft.
		Temp. 82°

321st Mile

		S. 89° 53' E. on the tangent to the parallel. Over gently rolling valley land.
	10.25	Ledge of red sandstone, about 15 ft. high, bears N. E. and S. W.
	27.00	Darling's 12th mile cor., bears N. about 8 chs. dist.
		I destroyed this cor.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 1 lks.; position of middle point.
		By 1st set 80.02 chs..
		By 2nd set 79.98 chs.; the mean of which is 80.00 chs.
4850 ft.	80.00	N. 110 lks. + Correction 558 lks. N.=668 lks. N. from the tangent.
		Set temporary cor.
		See page 410.
		Land, gently rolling, valley.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and cactus.
		Alt. 4850 ft.
		Temp. 82°

322nd Mile

		S. 89° 52' E. on the tangent to the parallel.
	38.30	Dry arroyo, course S.
	[fol. 343] 58.33	Stadia measurement, from this point.

Altitude	Chs.	
		Angle 11 + Rod 16.65 ft. double = 1610 ft. × 9636 = 1551.40 ft. + C. 1.13 ft. = 1552.53 ft. = 23.52 chs. + 58.33 chs. = 81.85 chs. — 80.00 chs. = 1.85 chs. on the 323rd mile.
4850 ft	60.00	Foot of bluff, bears N. W. and S. E., ascend
	80.00	Comes among big blocks of stone on steep S. W. slope.
		I advance this cor.
		Land, valley and hillside.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and cactus in valley.
		Scattering oak, cedar and pinon brush on slope.

323rd Mile

		S. 89° 52' E. on the tangent to the parallel
	1.85	Stadia point, thence by tape.
		Difference between measurements of 60.48 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 60.49 chs.,
		By 2nd set 60.47 chs., the mean of which is 60.48 chs. + 23.52 chs., stadia = 84.00 chs. — 80.00 chs. = 4.00 chs. on 323rd mile.
5200 ft	4.00	N. 130 lks. + Correction 576 lks. N. = 706 lks. N. from the tangent.
		This offset places the point for this cor. over ridge on N. slope.
		Set temporary cor.
		Alt. 5200 ft.
		Temp. 82°
		Descend.
4800 ft	35.00	Foot of bluff bears N. W. and S. E.; enter Cimarron valley.
		Difference between measurements of 76.00 chs. by 2 sets of chainmen is 8 lks., position of middle point.
		By 1st set 76.04 chs.,
		By 2nd set 75.96 chs.; the mean of which is 76.00 chs. from last cor. + 4.00 chs. = 80.00 chs.
4800 ft [el. 3444]	80.00	N. 150 lks. + Correction 594 lks. N. = 744 lks. N. from the tangent.
		Set temporary cor.
		Land, rough slope and valley.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and cactus in valley.
		Pinon and oak brush on slope.
		Alt. 4800 ft.
		Temp. 80°.

Altitude	Chs.	
		324th Mile
		S. 89° 51′ E. on the tangent to the parallel. Over gently rolling valley.
	.50	Wagon road, bears N. and S.
	2.00	Dry arroyo, course S. E.
	31.00	Darling's 9th mile cor., bears N. about 9.00 chs. dist.
		I destroyed this cor.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is nothing; the mean is 80.00 chs.
4875 ft.	80.00	N. 172 lks. + Correction 612 lks. N. = 784 lks. N. from the tangent.
		Set temporary cor.
		Land, gently rolling valley.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and cactus.
		Alt. 4875 ft.
		Temp. 75°.

		325th Mile
		S. 89° 50′ E. on the tangent to the parallel
	6.20	Wagon road, bears N. W. and S. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 80.01 chs.,
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
4890 ft.	80.00	N. 196 lks. + Correction 630 lks. N. = 826 lks. N. from the tangent,
[fol. 345]		Set temporary 325th mile cor., and astronomical monument No. 7. This places this temporary monument 422 lks. S. of the 37th parallel, as determined by astronomical observations made on the nights of Nov. 3rd, 4th, and 7th, 1902. This being within the limit of 3″ of arc, allowed by the Hon. Commissioner.
		See page 411.
		Land, nearly level valley.
		Soil, sandy loam, 3rd rate.
		Vegetation, grass and sage.
		Alt. 4890 ft.
		Temp. 74°.

June 25th, 1903.

On the afternoon of June 6th, 1903, I carefully adjust the transit as to levels and collimation, and

Altitude Chs.

compare the steel tapes with the standard, and find them of correct length.

At the point for the temporary 325th mile cor., June 7th, 1903, at 2h 30m A. M., l. m. t., I observe Polaris at Eastern elongation and mark a point in the line, so found, on a plug driven in the ground 10 chs. N. of my station.
At 7h 10m A. M., I lay off the azimuth of Polaris 1° 30.9′ to the West and mark a point in the true meridian on a plug driven in the ground N. of my station.
The magnetic bearing of this meridian is N. 12° 45′ W.
This gives magnetic declination 12° 45′ E. I now lay off an angle of 90° from the meridian, from the N. to the E. for the tangent to the parallel.
In all these observations and the subsequent turning of angles, the mean of four sights was used, with the telescope reversed at each sight.

[fol. 346]

326th Mile

East on the tangent to the parallel.

9.13 Our temporary astronomical station P.45 chs. N.

16.10 Dry bed of Sheep Pen Canon Creek, 20 lks. wide, course S.

25.00 Foot of hills bears N. W. and S. W.
Leave Cimarron valley; ascend.
Angle 14° + Rod 12.60 double = 2520 ft. × .9415 = 2372.58 ft. + C. = 1.11 ft. = 2373.69 ft. = 35.96 chs. + 25.20 chs. = 61.16 chs.

25.20 Stadia point, thence by stadia measurement.

32.20 Darling's 7th mile cor., bears N. 1.15 chs. dist.
A sandstone 28x12x4 ins. in pile of stone.
I destroy this cor.

61.16 Stadia point on top of wall, W. edge of high mesa, about 700 ft. above Cimarron Valley, bears N. E. for about 10 chs., then N. W. and S. of line bears S. W.
Difference between measurements of 44.04 chs., by 2 sets of chainmen is 2 lks., position of middle point,
By 1st set 44.05 chs.,

Altitude	Chs.	
		By 2nd set 44.03 chs.; the mean of which is 44.04 chs.+35.96 chs.=80.00 chs.
5550 ft.	80.00	N. .76 of a link from the tangent.
		Set a temporary cor.
		Land, rough and broken and mesa.
		Vegetation, grass and cactus.
		Soil, sandy, 3rd rate.
		Alt. 5550 ft.
		Temp. 70°.

327th Mile

		S. 89° 59′ E. on the tangent to the parallel.
		Over mesa land.
	20.50	Head of draw, drains S. W.
	32.25	Darling's 6th mile cor. bears N. 130 lks. dist. A lava stone 16x12x6 ins. marked C. on N., 6 M. on E., N. M. on S. and 1868 on W. faces. I destroyed this cor.
[fol. 347]		All the Darling corners from here Eastward to the McComb cor. were found and the marks obliterated.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 4 lks., position of middle point,
		By 1st set 80.02 chs.,
		By 2nd set 79.98 chs., the mean of which is 80.00 chs.
5525 ft.	80.00	N. 3 lks. from the tangent.
		Set temporary cor.
		Land, mesa, gently rolling.
		Soil, sandy, 3rd rate.
		Vegetation, grass and cactus.
		Alt. 5525 ft.
		Temp. 70°.

328th Mile

		S. 89° 59′ E. on the tangent to the parallel.
		Over mesa land.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 80.01 chs.,
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
5490 ft.	80.00	N. 7 lks. from the tangent.
		Set temporary cor.

Altitude	Chs	
		Land, gently rolling mesa.
		Soil, sandy, 3rd rate.
		Vegetation, grass and cactus.
		Alt. 5490 ft.
		Temp. 70°.

329th Mile

		S. 89° 58′ E. on the tangent to the parallel.
		Over mesa land.
	63.00	Head of rocky gulch, 50 ft. deep, course S. E.
	76.00	Head of rocky canon 75 ft. deep, course S.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 8 lks., position of middle point,
[fol. 348]		By 1st set 80.04 chs.,
		By 2nd set 79.96 chs.; the mean of which is 80.00 chs.
5450 ft.	80.00	N. 12 lks. from the tangent,
		Set temporary cor.
		Land, gently rolling.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, grass, cactus, scattering cedar along gulches.
		Alt. 5450 ft.
		Temp. 72°.

June 7th, 1903.

I examine the transit, compare the steel tapes with the standard, find all correct and in adjustment.

330th Mile

		S. 89° 57′ E. on the tangent to the parallel.
	20.00	Enter timber and brush.
	30.00	Head of canon, course N. E.
5300 ft.	50.00	On spur, slope N. E.
5200 ft.	80.00	Comes in canon, bears S.
		Impracticable to establish the cor. at this point.
		Land, rough and broken.
		Soil, sandy and rocky, 3rd rate.
		Vegetation, grass, cedar and pinon timber; oak brush.
		Alt. 5200 ft.
		Temp. 70°.

Altitude	Chs.	831st Mile
		S. 89° 57' E. on the tangent to the parallel. Ascend.
5350 ft.	80.00	N. 20 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for the 330th mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N.; N. M. on S. and 330.1 M. stamped in the center.
[fol. 349]		Raised a mound of stone, 5 ft. base, 2 ft. high, around the post. Pits impracticable. A cedar tree 6 ins. dia. bears S. 49½° E. 12 lks. dist. marked N. M., 330.1 M., B. T. No other trees within limit. This cor. stands on E. bluff about 110 ft. above bottom of canon, bears N. and S. Alt. 5300 ft. Temp. 70°.
	20.00	Rocky canon about 100 ft. deep, course S.
	41.23	A sandstone 16 x 10 x 6 ins. in what has once been a very large mound of earth about 10 ft. in dia., bears N. 2.05 chs. from the tangent. This stone is marked 103 L. on N., N. M. 1874 and the word "Major" below on S. This, I believe, to be the Col. Johnson monument.
	57.00	Head of rocky canon, course S. E.
		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 10 lks., position of middle point. By 1st set 80.05 chs., By 2nd set 79.95 chs.; the mean of which is 80.00 chs.
5110 ft.	80.00	N. 27 lks. from the tangent. Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 331st mile cor. A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 331 M. stamped in the center. Raised a mound of stone, 5 ft. base 2 ft. high around the post. Pits impracticable. No bearings. Land, mesa, somewhat broken. Soil, sandy, 3rd rate. Vegetation, grass, cactus; scrub cedar and pinon in the canons. Alt. 5110 ft. Temp. 70°.

Altitude	Chs.	
[fol. 350]		332nd Mile
		S. 89° 56′ E. on the tangent to the parallel
	1.53	Stadia measurement.
		Angle 2° — Rod 8.15 double = 1630 ft. × .9988 = 1628.04 ft. + C. = 1.15 ft. = 1629.19 ft = 24.68 chs. + 1.53 chs. = 26.21 chs.
	17.00	Head of canon, course S. E.
	26.21	Stadia point.
		Stadia measurement.
		Angle 0° Rod 8.00 double = 1600 ft. + C. = 1.15 ft. = 1601.15 ft. = 24.26 chs. + 26.21 chs. = 50.47 chs.
	37.00	Bottom of canon, about 150 ft. deep, course S. E.; ascend.
	50.47	Stadia point on mesa. S. side of canon, bears N. W. and S. E.
		Thence by tape measurement.
		Difference between measurements of 31.07 chs. by 2 sets of chainmen is 2 lks., position of middle point.
		By 1st set 31.07 chs.
		By 2nd set 31.05 chs.; the mean of which is 31.06 chs. + 48.94 chs. = 80.00 chs.
5100 ft.	80.00	N. 37 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom 2 ft. in the ground for 332nd mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S. and 332nd M. stamped in the center.
		Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
		Pits impracticable.
		No bearings.
		This cor. stands on mesa about 1½ chs. S. of canon wall, that bears N. W. and N. E.
		Land, mesa, broken by canons.
		Soil, sandy, 3rd rate.
		Vegetation, grass and cactus on mesa; scrub cedar in canons.
		Alt. 5100 ft.
		Temp. 70°.
[fol. 351]		333rd Mile
		S. 89° 55′ E. on the tangent to the parallel.
		Difference between measurements of 29.10 chs. by 2 sets of chainmen is nothing; the mean is 29.10 chs.

Altitude	Chs.	
	29.19	On wall of canon bears N. E. and S. W.
		Thence by stadia measurement,
		Angle 7° — Rod 6.70 double = 1340 ft. × .9851 = 1320.03 ft. + C. = 1.14 ft. = 1321.17 ft. = 20.02 chs. + 29.19 chs. = 49.12 chs.
	29.75	Capt. Macomb's monument, which was Darling's initial cor. bears N. 143 lks. from the tangent. The offset for this point being 41 lks. places the monument 93 lks. N. of the boundary line as established by me.
		This monument consists of a pile of stone about 10 ft. in dia. and 6 ft. high, on top of which I found a stone 18 x 12 x 4 ins. marked 103 W. L. 1868. I obliterated the marks on this stone.
	40.00	Bottom of canon about 300 ft. deep, course N. E. Ascend.
	49.12	Stadia point on spur, slope N., about 100 ft. above bottom of canon.
		Stadia measurement,
		Angle 8° — Rod 7.50 double = 1500 ft. × .9806 ft. = 1470.90 ft. + C. = 1.14 ft. = 1472.04 ft. = 22.30 chs. + 49.12 chs. = 71.42 chs.
4600 ft.	68.00	Bottom of canon, course S.
	71.42	Stadia point,
		Angle 18° + Rod 10.50 single = 1050 ft. × .9045 = 949.72 ft. + C. = 1.09 ft. = 950.81 ft. = 14.40 chs. + 71.42 chs. = 85.82 chs. — 80.00 chs. = 5.82 chs. on 33⅓rd mile.
	89.06	Comes on steep slope of canon wall. Impracticable to establish the cor. at this point.
		Land, broken, rough and rocky.
		Soil, rocky and sandy, 3rd rate.
		Vegetation, grass and sage; scrub cedar and pinon.

[fol. 352]

33⅓rd Mile.

S. 89° 57' E. on the tangent to the parallel.

	5.82	Stadia point on canon wall, bears N. and S.
		Thence by tape measurement,
1900 ft.	6.40	N. 50 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long with flanges at the bottom, 10 ins. in the ground to bed rock, for 33⅓rd mile cor.
		A brass cap on the top of the pipe has raised letters, Colo. on N., N. M. on S., and 33⅓ stamped in the center. Raised a mound of stone, 5 ft. base, 2 ft. high, around the post.
		Pits impracticable.

Altitude Chs.

A cedar tree 7 ins. dia. bears N. 41½ E. 109 lks. dist. marked Colo., 333.08 M., B. T.
A pinon tree 5 ins. dia. bears S. 74½ E. 74 lks. dist. marked N. M., 333.08 M., B. T.
No other trees within limits suitable for bearing trees.
Alt. 4900 ft.
Temp. 68°.
Thence by stadia measurements, descend.
Angle 8° — Rod 9.33 double = 1866 ft. × .9806 = 1829.80 ft. + C. = 1.14 ft. = 1830.94 ft. = 27.74 chs. + 6.40 chs. = 34.14 chs.

34.14 Stadia point, at foot of hill about 200 ft. below cor. bears N. W. and S. W. Thence by tape measurement, across mouth of little valley from S. W.

70.90 Point on E. slope near foot of butte.
Difference between measurements of 45.86 chs. by 2 sets of chainmen is 4 lks., position of middle point.
By 1st set 45.88 chs.,
By 2nd set 45.84 chs., the mean of which is 45.86 chs. + 34.13 chs. = 80.00 chs.

4640 ft. 80.00 N. 62 lks. from the tangent.
Set an iron pipe 3 ins. dia., 9 ft. long with flanges at the bottom 2 ft. in the ground for the 334th mile cor.
A brass cap on the top of the pipe has raised [fol. 353] letters, Colo. on N., N. M. on S. and 334 M. stamped in the center.
Raised a mound of stone, 5 ft. base, 2 ft. high around the post. Pits impracticable.
A x on a sandstone 15 x 10 x 8 ft. above ground bears S. 31° W. 38 lks. dist., marked N. M., 334 M., B. O.
A x cross on a sandstone 20 x 12 x 8 ft. above ground bears N. 6° 10' E. 200 lks. dist. marked Colo., 334 M., B. O.
Land, rough and broken.
Soil, sandy, 3rd rate.
Vegetation, grass, sage, cactus, scattering scrub cedar and pinon brush.
Alt. 4640 ft.
Temp. 68°.

June 8th, 1903.

I examine the transit, compare the steel tapes with the standard, and find all correct and in adjustment.

Altitude	Chs.	335th Mile
		S. 89° 54′ E. on the tangent to the parallel. Descending gradually across valley.
		Enter Carriso Valley, bears N. E. and S. W.
	71.00	A stone monument 12 x 12 x 24 ins. above ground firmly set, bears North 185 lks. from the tangent Our offset for this point is 75 lds. This would place this monument 140 lks. N. of the boundary line as run by me. This monument is marked "Colo." on N., C. M. on E., "N. E. cor N. M." on S. and "C. C. 1900 on W.," of the cor. A dressed sandstone shaft 15 ins. square, 4½ ft. above ground and firmly set bears N. from the same point on the tangent 15.93 chs.
		This shaft is marked COLORADO on N., 37 N. L. on E., 103 W. L. on S., and 1881 on W.
		I left both these monuments as I found them.
[fol. 354]		Difference between measurements of 80.00 chs. by 2 sets of chainmen is 2 lks., position of middle point,
		By 1st set 80.01 chs.,
		By 2nd set 79.99 chs.; the mean of which is 80.00 chs.
4600 ft.	80.00	N. 76 lks. from the tangent.
		Set an iron pipe 3 ins. dia. 4 ft. long, with flange at the bottom, 2 ft. in the ground for 335th mile cor. A brass cap on the top of the pipe has raised letters Colo. on N., Okla. on S. and 335 M. stamped in the center. Dug pits 36 x 36 x 18 ins. N., S., E. and W. of the cor. 6 ft. dist. Raised a mound of earth 5 ft. base, 2 ft. high, around the post.
		N. edge of round butte bears S. 89° E. about 3 miles dist. Small round butte in valley bears S. 63° 10′ W. about 2 miles dist.
		Land, gently rolling, valley.
		Soil, sandy, 2nd rate.
		Vegetation, grass and cactus.
		Alt. 4600 ft.
		Temp. 60°.

1902

We hereby certify that we assisted Howard B. Carpenter, United States Surveyor and Astronomer, in re-surveying all parts or portions of the South Boundary of the State of Colorado which are represented in the foregoing field notes as having been re-surveyed by him and under his direction; and that said survey has been in all respects

to the best of our knowledge and belief, well and faithfully surveyed, and the corner monument established according to instructions furnished by the Commissioner of the General Land Office.

(Signed) L. B. Neighbour, Transitman. E. Potter Lockwood, Chainman. Walter Stone, Chainman. Ernest G. Spinney, Chainman. Linus Olson, Chainman. C. D. Carpenter, Moundman. J. W. Miller, Moundman. Chas. (his X [fol. 235] mark) Windquest, Moundman. Grover Bowman, Axman. O. J. Bowman, Axman. Wm. D. Skinner, Rodman. J. L. Weintz, Flagman. J. G. Myers, Flagman.

Subscribed and sworn to before me this 15th day of December, 1902. (Signed) Howard B. Carpenter, U. S. Surveyor and Astronomer.

1903

Final Oaths of Assistants

We hereby certify that we assisted Howard B. Carpenter, United States Surveyor and Astronomer, in re-surveying all those parts or portions of the South Boundary of the State of Colorado which are represented in the foregoing field notes as having been re-surveyed by him and under his direction; and that said survey has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the corner monuments established according to instructions furnished by the Commissioner of the General Land Office.

(Signed) Oscar McClellan, Transitman. Walter Stone, Chainman. Wm. L. Horton, Chainman. C. Holliday, Chainman. Potter Lockwood, Chainman. C. D. Carpenter, Moundman. Chas. (his X mark) Windquist, Moundman. Linus Olson, Moundman. Harry Weimer, Axman. Silas S. Weimer, Axman. Ed. P. Blanchard Rodman. Fred F. Lockwood, Flagman. Wm. A. Pinckard, Flagman.

[fol. 235] Subscribed and sworn to before me this 21st day of July, 1903. (Signed) Howard B. Carpenter, U. S. Surveyor and Astronomer.

1903

Final Oath of Assistants

We E. P. Blanchard, F. E. Wright and Andrew Ferrara, do solemnly swear that we assisted Howard B. Carpenter, U. S. Surveyor and Astronomer, in resetting all those monuments and mile corners on that portion of the 37th parallel of North Latitude, in the resurvey of the South Boundary of the State of Colorado, represented

in the foregoing field notes as having been reset by him, and that the said monuments and mile corners, have been established in accordance with the Manual and his special instructions, to the best of our knowledge and belief.

(Signed) Ed. P. Blanchard, Chainman. F. E. Wright, Chainman. Andrew (his X mark) Ferrara, Moundman.

Subscribed and sworn to before me this Twenty-ninth day of October, 1903. (Signed) Howard B. Carpenter, U. S. Surveyor and Astronomer.

Final Oath of U. S. Surveyor and Astronomer

I, Howard B. Carpenter, United States Surveyor and Astronomer, do solemnly swear that in pursuance of a contract with Hon. Binger Herman, Commissioner of the General Land Office, bearing date of July 7th, 1902, and in strict conformity to the laws of the United States and the instructions furnished me by Acting Commissioner, W. A. Richards, I have well, faithfully and truly, in my own proper person, re-surveyed, re-marked and re-established the boundary line between the State of Colorado and the Territory of New Mexico,—and the State of Colorado and the Territory of Oklahoma,—the same [fol. 357] being that portion of the parallel of thirty-seven degrees North Latitude, lying between the twenty-fifth and the thirty-second degrees of West Longitude from Washington; that I have destroyed such evidences as I have been able to find, of corners monuments originally established on said line by E. N. Darling, U. S. Surveyor.

And I do further solemnly swear that all the corners of said re-survey have been established and perpetuated in strict accordance with the Manual of surveying Instructions and the special written instructions of the Hon. Acting Commissioner and in specific manner described in the field notes and that the foregoing are the true field notes and astronomical notes of such re-survey and should any fraud be detected I will suffer the penalty of perjury, under the provisions of an act of Congress approved August 8th, 1846.

(Signed) Howard B. Carpenter, United States Surveyor and Astronomer.

Subscribed and sworn to before me this 5th day of January, 1904. (Signed) Lomi Kirk, Clerk of the United States Circuit Court for the District of Wyoming. (Seal.)

Department of the Interior

General Land Office

February 25th, 1904.

The foregoing field notes of the re-survey of the Boundary Line between the State of Colorado and the Territories of New Mexico and Oklahoma, executed by Howard B. Carpenter, U. S. Surveyor, under

This contract with the Commissioner of the General Land Office, dated July 7th, 1902, having been examined and found correct are hereby approved.

(Signed) W. A. Richards, Commissioner.

Department of the Interior

U. S. Surveyor General, Santa Fe, New Mexico

I, Lucius Dills, U. S. Surveyor General for the District of New Mexico, hereby certify that the foregoing 434 pages of type-written [fol. 358] matter is a true and correct copy of the Duplicate Original field notes now on file in my office, of the survey of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, as executed by Howard B. Carpenter, U. S. Surveyor, under instructions from the Commissioner of the General Land Office, and that this Copy is a full and complete record of such survey except the Astronomical Data and Calculations upon which the surveyor based the establishment of the Astronomical Monuments placed by him at intervals along and upon said line of survey.

Witness my hand and Official Seal, at my office in the City of Santa Fe, State of New Mexico, on this the 8th day of November, 1918.

Lucius Dills, U. S. Surveyor General for New Mexico. (Seal.)

[fol. 359] SUBPŒNA AND MARSHAL'S RETURN—Filed Nov. 14, 1919

THE UNITED STATES OF AMERICA, ss:

[Seal of the Supreme Court of the United States.]

The President of the United States to the State of Colorado, Greeting:

For certain causes offered before the Supreme Court of the United States, having jurisdiction in Equity, you are hereby commanded that, laying all other matters aside and notwithstanding any excuse, you be and appear before the said Supreme Court, holding jurisdiction in Equity, on Monday, March 1st, 1920, at the City of Washington, in the District of Columbia, being the Seat of the National Government of the United States, to answer unto a bill of complaint of the State of New Mexico exhibited against you.

Hereof you are not to fail at your peril.

Witness the Honorable Edward D. White, Chief Justice of the United States, at the City of Washington, the 29th day of October, A. D. 1919.

James D. Maher, Clerk of the Supreme Court of the United States.

Service of the above Subpoena and a certified copy of the Bill of Complaint therein mentioned are this 19th day of November, 1919, accepted and acknowledged.

Oliver H. Shoup, Governor of the State of Colorado. Victor E. Keyes, Attorney-General of the State of Colorado.

[fol. 360] Office of the Marshal, Supreme Court U. S.

Came to my hand the 19th day of October, 1919, and executed through acceptance of service in writing by Oliver H. Shoup, Governor of the State of Colorado, and Victor E. Keyes, Attorney-General of the State of Colorado, on the 19th day of November, 1919.

Witness my hand this 14th day of November, 1919, at the City of Washington.

Frank K. Green, Marshal Supreme Court U. S.

[fol. 361] [File endorsement omitted.]

[fol. 362] Supreme Court of the United States

[Title omitted]

Minute Entry of Order Granting Leave to File Answer and Cross-bill—March 1, 1920

Leave granted to file answer and cross-bill on motion of Mr. E. P. Taylor in behalf of counsel for defendant.

[fol. 363] In the Supreme Court of the United States

Original, No. 25

[Title omitted]

Motion for Leave to File Answer and Cross-bill—Filed Mar. 4, 1920

To the Honorables the Chief Justice and Associate Justices of the Supreme Court of the United States:

Motion for leave to file Answer and Cross Bill of the State of Colorado to the Bill of Complaint in the above named cause.

Comes now the State of Colorado and moves this Honorable Court for leave to file its Answer and Cross Bill to the Bill of Complaint of the State of New Mexico in the above named cause, and that process issue requiring the complainant to answer said cross bill.

Respectfully submitted, the State of Colorado, by Victor E. Keyes, Its Attorney General.

[fol. 364] [File endorsement omitted]

IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

ANSWER AND CROSS-BILL OF THE STATE OF COLORADO TO THE BILL OF COMPLAINT—Filed Mar. 1, 1920

[fol. 365] To the Honorables the Chief Justice and Associate Justices of the Supreme Court of the United States:

The Answer and Cross Bill of the State of Colorado to the Bill of Complaint of the State of New Mexico.

And now comes the State of Colorado, the defendant, and for answer to said bill, says:

I

This defendant admits that the ground upon which the Court's jurisdiction of the matters set forth in the bill of complaint depends, is that the said bill sets out a controversy between two states of which this Court has original jurisdiction.

II

This defendant admits that by the legislation of Congress, and by the Constitution of the State of New Mexico under which the said State was admitted into the Union of States, the northern boundary line thereof extends along the 37th parallel of North latitude from the intersection of said parallel with the 32nd meridian of longitude West from Washington in an easterly direction to the point where said parallel of latitude intersects the 103rd meridian of longitude West from Greenwich, and avers that the State of New Mexico was admitted into the Union of States on the 5th day of January, 1912.

III

This defendant admits that on the 7th day of July, 1902, Howard B. Carpenter, a United States Surveyor, entered into a contract with the United States to re-survey, re-establish and remark the boundary line between Colorado and the Territories of New Mexico and Oklahoma, and that in pursuance of said contract the said Carpenter did thereafter proceed to re-survey, re-establish and re-mark the said boundary line as is shown by the record and field notes of his work, and admits that said field notes were approved by the then Commissioner of the General Land Office; but defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by either [fol. 366] the state of Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm the said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which

passed the Senate and the House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with his objections thereto, which Resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter surveys and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is hereto attached and made a part hereof.

IV

This defendant denies that the line surveyed and established by the said Carpenter, as shown by his field notes, is the true or correct boundary line between the said two states; admits that in disregard of said Carpenter line it has exercised jurisdiction over a considerable amount of territory South of said Carpenter line, and has levied and collected taxes upon property South of said line, and through its Courts, has exercised both civil and criminal jurisdiction over persons and property lying South of said line, but denies that said acts, doings, pretenses or claims of the State of Colorado, or any of the same, are contrary to equity or good conscience or tend to the manifest or any wrong, injury or oppression of the State of New Mexico, or of its citizens or owners of property within its boundaries, or that said acts or any thereof were or are unlawful or in usurpation of the jurisdiction, rights or authority of said State of New Mexico.

V

For further defense to said bill of complaint, this defendant avers that in the Act of Congress, approved March 3rd, 1875, to enable the People of Colorado to form a Constitution and State government, and be admitted into the Union, (18 Statutes at Large, 474), and also by the Constitution adopted by the vote of the People of Colorado, and under which the State of Colorado was admitted into the Union by Proclamation of President Grant, August 1st, 1876, the 37th parallel of North latitude between the 25th and 32nd meridians of longitude West from Washington, was fixed as the southern boundary line of that state; that pursuant to authority of an Act of Congress, approved March 2nd, 1867, (14 Statutes at Large, 466), Ehud N. [fol. 367] Darling, United States Surveyor and Astronomer, by the most approved methods of the time, surveyed and established in the year 1868, the 37th parallel of North latitude so far as it constituted the boundary line between the Territories of Colorado and New Mexico, and marked the same upon the earth's surface by mile corners and monuments, a copy of which survey together with the field notes of his work is attached hereto and made a part hereof, which

field notes of said survey were examined and approved on the 30th day of April, 1869, by the Honorable Joseph S. Wilson, Commissioner of the General Land Office, as appears by his certificate to that effect attached to said field notes.

Defendant avers that for more than thirty (30) years, the position of the said Darling line remained undisputed, and the correctness of its technical execution unquestioned, and as so established the said Darling line has been generally recognized and acquiesced in by both of the States herein involved, and accepted by the Federal government, and is now recognized and accepted by the Federal government as the true and subsisting boundary line between Colorado and New Mexico; and by reason of the right and title acquired as hereinbefore set forth, this defendant from the time said boundary was so established in 1868 to the present time, has held lawful and rightful possession of and exercised dominion and sovereignty, and now claims the same, over the territory down to the said southern boundary line as established by the said Darling, and no farther; county lines have been formed, towns and settlements have grown up, school districts, election districts, voting precincts, land districts and water districts have been created with reference to said line, public officers have been elected, property has been assessed, taxes levied and collected under the authority of the State of Colorado and its courts of both civil and criminal jurisdiction have exercised unquestioned jurisdiction in all places North of said boundary line, and the State of New Mexico has exercised like jurisdiction in all places South of said line. County maps, State maps and maps prepared by the Federal government have for more than forty years last past delimitated said boundary according to said Darling survey, and government post offices have been established as being in Colorado when above said line, and in New Mexico when below said line, and public land surveys on both sides of said line were closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico fixed by reference to said line.

The 37th parallel of North latitude, as established by Howard B. Carpenter, passes through several towns lying wholly within the State of Colorado, according to the boundary as originally surveyed by Darling, and along the entire line there is a material, and in many places, excessive variance between the lines of the two surveys, and the [fol. 368] effect of said Carpenter survey if declared the true boundary line would be to remove a considerable strip of territory which is now within the State of Colorado, according to the Darling survey, and place it in the State of New Mexico.

The stone monument established by Capt. Macomb U. S. A. of the Topographical Bureau in 1858, under direction of the War Department, marking the intersection of the 37th parallel of North Latitude with 103° of West Longitude from Greenwich, adopted as the initial point of the Darling Survey, was designated as the northwest corner of Indian Territory, now State of Oklahoma, in 1874 by John J. Major, U. S. Surveyor and Astronomer, in the survey and marking of the boundary between Indian Territory and Colorado Territory. The line attempted to be established by said Carpenter

passed 93 lks south of said Macomb monument and departed from the boundary lines established by both Darling and Major, and said Carpenter obliterated the marks upon said Macomb monument, heretofore and since hitherto recognized as the corner upon the south line of Colorado and common to the States of New Mexica and Oklahoma, and attempted to relocate said common corner at a point about two miles easterly from said long established and accepted Macomb monument.

The said Carpenter survey consisted of a new fixation of the 37th parallel of North latitude independent of the line established by Darling in 1868, and not only failed of confirmation by Congress, but the Federal government up to the present time has declined to recognize the said Carpenter survey as the true boundary line between the said two states, and on the contrary has accepted and still accepts the said Darling survey as the true and correct boundary line between said two states.

All of which matters and things as hereinbefore stated, this defendant avers to be true and this defendant pleads the same in bar to the bill of complaint, and prays the judgment of the Court whether it shall further answer said bill.

Wherefore, having answered fully all the matters in plaintiff's bill set forth, defendant prays this Honorable Court that the prayer thereof be not granted, but that the Court decree that the boundary line between the State of New Mexico and the State of Colorado be, in accordance with said Darling survey, the true boundary line between the said two states, and that the said bill be dismissed and the defendant go hence with its costs in this behalf incurred, and that this defendant have such other and further relief as may be found necessary and as to the Court shall seem meet and proper.

Cross-bill

And now by way of cross complaint and for affirmative relief against the plaintiff, your orator, the State of Colorado, shows to [fol. 369] the Honorables, the Chief Justice and Associate Justices of the Supreme Court of the United States:

That the true boundary line between plaintiff and defendant is described in the foregoing answer and is fully and correctly shown and delineated in the field notes and survey made in 1868, by Ehud N. Darling, attached hereto and made a part of this cross bill, as well as a part of said answer, and for this cross bill defendant adopts the allegations of fact contained in the foregoing answer and makes the same a part of this cross bill, as fully and to all intents and purposes as if the said allegations were set out in detail in this cross bill; and defendant further avers the said Carpenter in making his said survey destroyed and obliterated many of the monuments and corners established by said Darling in making his said survey.

Wherefore, your orator, to the end that it may obtain the relief to which it is justly entitled, and avoid future controversies in reference hereto, prays the Court to grant unto your orator such process of this Honorable Court as may be appropriate to require the plaintiff, the

State of New Mexico to appear and answer (not under oath, answer under oath being hereby expressly waived) to the several allegations in this cross bill contained; and that upon the final hearing hereof the true southern boundary line of the State of Colorado and the northern boundary line of the State of New Mexico, be declared and decreed by this Court to be the line established as aforesaid by Eliud N. Darling in the year 1868, and as the same is shown by the field notes of his work, attached hereto and made a part hereof, and that the defendant have such other and further relief as may be found necessary in order to correctly restore, re-establish and re-mark said Darling line as the boundary line between the plaintiff and defendant, and as to the Court shall seem meet and proper, and that the defendant have and recover its costs herein incurred.

The State of Colorado, by Victor E. Keyes, Its Attorney General. William R. Ramsey, Assistant Attorney General. Charles Roach, Deputy Attorney General. Delph E. Carpenter, of Counsel.

[fol. 370] EXHIBIT TO ANSWER AND CROSS-BILL.

Veto Message of President Roosevelt in re Colorado Boundary Line

December 19, 1908.

To the Senate:

I return herewith, without approval, Senate joint resolution No. 78, "Establishing the boundary line between the States of Colorado and Oklahoma and the Territory of New Mexico," for the reasons set forth in the following communication of the Attorney-General:

"I have the honor to report, with respect to joint resolution S. R. 78, referred by you to this department, that the purpose of the said resolution appears to be to correct the boundary line between the Territory of New Mexico and the States of Colorado and Oklahoma. The practical effect of establishing the new boundary line, so far as the State of Colorado is concerned, would be to remove from the jurisdiction of that State and add to the Territory of New Mexico a strip along nearly the whole of the southern boundary of the said State, in which there are located at least five post-offices and an appreciable number of inhabitants. So far as I am aware no action has been taken by the legislature of the State of Colorado assenting to or accepting the location of the boundary as proposed in this resolution, and from such inquiry as I have been able to make in the very limited time since the resolution reached me, I am led to think that such assent or acceptance on the part of the State is improbable. Under these circumstances, I think it is of very doubtful expediency to have the line mentioned in the resolution accepted by the United States as the true boundary. It is not necessary to express an opinion as to the legal effect of such a resolution upon the rights of the United States or of the Territory of New Mexico or the duties of federal or

territorial officers; but it is clear that the resolution would not be binding upon the State of Colorado, and its adoption might lead to conflicts of jurisdiction within the long strip of territory to which I have referred, and possibly to the escape from legal punishment of those guilty of crimes committed within the said strip. If it is deemed desirable to establish the true boundary line, an appropriate method to effect this would be to invoke, by appropriate proceedings, the original jurisdiction of the Supreme Court."

"I therefore respectfully advise that the joint resolution in question do not receive your signature."

Theodore Roosevelt.

The White House, December 19, 1908.

[fol. 371] EXHIBIT TO ANSWER AND CROSS-BILL

Field-notes of the survey of the 37th parallel of north latitude so far as it constitutes the north boundary of New Mexico, commencing at the 103° and terminating at the 109° of west longitude from Greenwich, by Ehud N. Darling, surveyor and astronomer, under his contract dated May 22nd, 1868

Names of Assistants

Jno. E. McManus, North A. Haight, Chainmen.
Robert Darling, Samuel Meyers, Otto Mangold, Cornermen.
Joel B. Durnall, John E. Jones, Flagmen.
J. Weissner, Astronomer.
Alonzo Mace, Asst. Astronomer.

Commenced July 19, 1868.
Completed November 18, 1868.
Standard chain compared with standard measure at Surveyor General's Office, Leavenworth, Kansas, June 18, 1868.
Measuring chain compared with standard and found correct.

Chains

[fol. 372] A transit of Troughton & Syms manufacture, London, England, was used in running the boundary. It having two telescopes one on the upper and one on the lower limb; and asimuth circle with two verniers to 30s with reading microscopes attached, and verticle circle and vernier also reading to 30s. A solar compass of Youngs make Phila was used in establishing corners. After carefully adjusting my transit in all its parts,—in order to determine the asimuth at the stone monument established by Capt. Macomb, U. S. A. of the Topographical bureau in 1858 under direction of the War Dept. for marking the 103° of West Longitude from Greenwich, I made the following observations on Polaris.

Chronometer fast on mean solar time. July 19th M. —5h 58′ 56″, with a losing rate of 30s pr day, on mean solar time.

Chains

Observations of Polaris, July 19th, 1868, lower transit.
Time of observations marked by Chronometer P. M.

	11h.	38".	30'
Upper Transit	10.	56	19
Chronometer interval	11	17'	49
Correction for Chronometer rate			11.124
Mean Solar interval	11.	18.	03. 12
Reduction to Sidereal time			1. 51. 38
Sidereal interval	11.	19.	54. 50
		—12.	
			40. 65. 5

Computation of error of asimuth.

Δ 20.02.75=1202.75=18041.25"	log.=	4.2565066
2 d cat 88° 36' .5		8.3877104
Sec. 37°		0.0976514
a 551.60=9' 11" .6		2.7504335

Therefore the instrument asmuithcal deviation is 9' 12" East. The magnetic variation 12° 36' East, as read by vernier, true variation 12° 45' 11". I therefore turn the upper telescope West 90.09' .11", as near as possible, the vernier A. B. reading to 30".

[fol. 373] The cobble stone monument established by Capt. Macomb U. S. A. is 8 feet at base, conical shape, 5 feet high and 2½ feet top. In order to better perpetuate the initial point I set a stone 30x10x8 imbedded 20 in. in monument with 10 in. projecting above same engraved on the S. E. Ind. T. on the S. W. N. M. on the N. W. Col. T. on the N. E. 1868 and 103° W. L.

From which point a

Conical Peak, bears N. 15 W. 8 miles dist.
Point of Bluff bears N. 74½ E., 60 chs. dist.
Point of Bluff bears N. 80½ E., 45 chs. dist.
Point of Bluff bears S. 75½ E., 20 chs. dist.
Point of Bluff bears N. 54½ W., 65 chs. dist.
Stone mound is 75 lks. West of Canon, 250 feet deep, bears N. N. E.

Thence West on Tangent, on 1st Mile

Variation 12° 45' East.

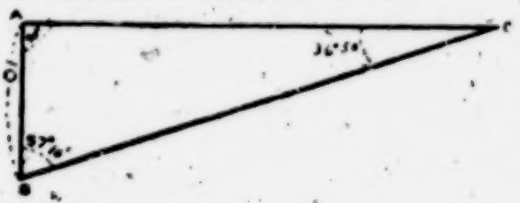
61.50 Top of steep bluff and enter cañon 200 feet deep, bears S. S. E.

Chains

80.00 Offset from tangent to Parallel to 1st mile corner. Marked sand stone 15x10x4 1 M.— and deposited it, 3½ feet in earth. Built conical mound of stone on side hill, 4 feet high, over same. Dug pits 40 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x14x8 projecting 8 in. above ground, marked on the North, South, West and East sides C.-N. M.-1868-N. M. respectively.
No natural objects near.
Surface except canon level.
Soil 3rd rate.

West on 2nd Mile

Variation 12° 14' East.
0.60 Top of bluff, bears North and South.
17.50 Canon, 75 feet deep, bears S. S. E.
23.00 Leave canon, bears S. S. E.
42.00 To canon, 150 feet deep bears S. S. E. Being impossible to measure the distance with chain over canon I set flag on line, on West side of canon, thence from point of intersection of canon I formed the right angle triangle A B C measured angles A and B A=90 B=57.10, hence the angle C must equal 32° 50' and the measured side AB=40 chs. Thence we have the formula.



Sin. 36° 50'= 9.773457
Sin. 57° 10'= 9.924409
[fol. 374] chs.
Log. 40.00= 1.000000
chs.
15.50 over canon 1.190252

57.50 Leave canon, bears S. S. E.
68.20 Earthen mound situated on a high level plateau established for the 103° Meridian of West Longitude from Greenwich on the 37th Parallel of North Latitud; in the Survey of the Southern boundary of Kansas in 1857. Mound was found partially destroyed, and apparently had been eight feet in diameter and five feet high. Found near mound a stone marked with a brush in black -N. M.-Col.- Ind. Ter.-37 N. L.- on the four sides respectfully.
80.00 Offset from tangent to Parallel to 2nd mile corner.
Marked stone 10x4x3 -2 M.-and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same.

Chains

Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 25x16x8 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -2 M.- respectively. No natural objects near.
Surface nearly level.
Soil 3rd rate.
July 20th. Measuring chain compared with standard and found correct.

West on 3rd Mile

Variation 12° 57′ East.
6.00 Canon 70 feet deep, bears S. W.
11.50 Leave canon, bears S. W.
65.00 Canon 100 feet deep, bears S. E.
77.00 Leave canon, bears E. S. E.
80.00 Offset from tangent to Parallel to 3d mile corner.
Marked stone 10x6x4 -3 M.- and deposited in 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 22x12x10 projecting 8 in. above mound, marked on the North, South, West and East side -C.- -N. M.- -1868- -3 M.- respectively. No natural objects near.
[fol. 375] Surface broken.
Soil 3d rate.

West on 4th Mile

Variation 12° 50′ East.
13.00 Top of Bluff, bears S. E.
At this point the magnetic variation is 18° East and at a point 4 chs. West, 10° East.
35.00 Enter head of canon, 75 feet wide, bears S. S. W.
38.00 Leave canon, bears S. S. W.
Variation 8° East.
47.00 Enters canon, bears South.
55.00 Leave canon, 50 feet deep, bears South.
70.00 Offset from tangent to Parallel to 4th mile corner.
Marked stone 8 x 6 x 4 -4 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26 x 16 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -4 M.- respectively.
From which point a Hay Stack Peak, bears S. 72½ E.

Chains

Hay Stack Peak, bears S. 61½ W.
Round mound bears S. 41 W.
Rabbit Ears mound, bears S. 12¼ W.
Large Hill, bears N. 71° W.
Prominent point of ridge bears N. 12¾ W.
North of this Point is a high plateau
Surface nearly level, except canons.
Soil 2nd rate.

West on 5th Mile

Variation 12° 50' East.

80.00 Offset from tangent to Parallel to 5th mile corner.
Marked stone 8 x 4 x 4 -5M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20 x 16 x 10, projecting 6 in. above mound marked on the North, South, West and East sides -C.- -N. M.- -1885- -5M.- respectively.
No natural objects near.
Soil 3rd rate.
Surface gently rolling, high prairie.

[fol. 376]

West on 6th Mile

Variation 10° to 15° East.

*80.00 Offset from tangent to Parallel to 6th mile corner.
Marked stone 6 x 6 x 3 -6M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26 x 12 x 10 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1886- -6 M.- respectively.
No natural objects near.
Surface gently rolling.
Soil 2nd rate.
July 21st. Measuring chain compared with standard and found correct.

West on 7th Mile

Variation 10° to 15° East.

51.00 Descend into valley of the Cimaron 800 feet below the level of the high prairie and about 2½ miles wide.

Chains

The bluffs are composed mainly of detached rock with four distinct formations.

80.00 Offset from tangent to Parallel to 7th mile corner, situated in canon, 700 feet below high Prairie. Marked stone 12 x 6 x 3 -7 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 16 lks. East and West from base of mound 2 feet square and 18 in. deep. Set said stone 28 x 12 x 6 projecting 8 in. above mound, marked on the North, South, West and East side -C.- -N. M.- -1868- 7 M.- respectively.
No natural objects near.
Surface prairie.
Soil 3rd rate.

West on 8th Mile

Variation 13° East.

10.66 Enter Cimaron valley, bears South.

80.00 Offset from tangent to Parallel to 8th mile corner.
Marked stone 12 x 8 x 4 -8 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set said stone 36 x 42 x 6 projecting 8 in. above mound marked on the North, South, West and East sides -C.- -N. M.- -1868- -8 M.- respectively.

66.37½ From which point, a Pyramid Mound 600 feet high bears N. 77 W.
Pyramid Mound bears S. 40 W., 2 miles dist.
Mound bears S. 30 E., 3 miles dist.
Surface prairie.
Soil 3rd rate.

West on 9th Mile

Variation 13° East

47.66 Pyramid mound, bears N. 800 lks. dist.

80.00 Offset from tangent to Parallel to 9th mile corner.
Marked stone 8 x 6 x 4 -9 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound 2 feet square and 18 in. deep. Set said stone 20 x 18 x 18 projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- 9 M.- respectively. From which point a sand stone boulder bears N. 60 E., 167 lks. dist.
Conical mound bears N. 45 E. 10 chs. dist.

Chains

Pyramid mound, bears S. 23 E.
Pyramid mound bears S. 10 E. 200 chs. dist.
Surface prairie.
Soil 3rd rate.
July 22nd. Measuring chain compared with standard and found correct.

West on 10th Mile

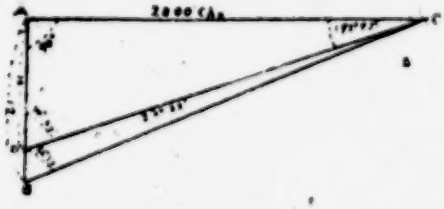
Variation 13° East.

80.00 Offset from tangent to Parallel to 10th mile corner. Marked stone 7 x 6 x 3 -10 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 40 x 12 x 8 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -10 M.- respectively.
No natural objects near.
Surface level prairie.
Soil 2nd rate.

West on 11th Mile

Variation 12° 50' East.

5.00 Foot of bluff, bears N. N. W. In order to measure the distance on line, with chain, to top of perpendicular bluff. [fol. 378] or spur, I find the right angle triangle.



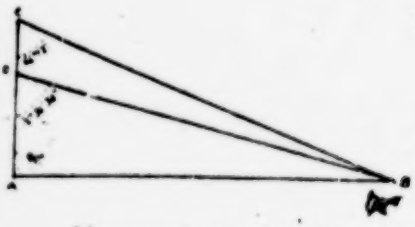
Sin. 23° 33'	=	9.601517	
Sin. 66° 27'	=	9.962233	
chs.			
Log. 12.20	=	1.086360	
27.99.1 chs.		1.447023	

Sin. 19° 39'	=	9.526693	
Sin. 70° 21'	=	9.973942	
chs.			
Log 10.00	=	1.000000	
28 chs.		1.447249	

Therefore the mean is

chs.	lks.
27	99.8

28.00 To top of perpendicular cliff or spur, bears S. E. From flag on line, in valley, on West side of ridge, in order to get the distance to flag on ridge, I found the right angle triangle.



Sin. 23° 48′	=	9.605892
Sin. 66° 12′	=	9.961402
Log. 15 chs.	=	1.176093
34.01 chs		1.531691

Measured Angles A=99. C=66 12′00″. D =73 36′ 30″

Therefore the angles A B C=23.48′ 00″. A B D=16.23.30 and measured sides A C=15 chs. A D=10 chs.

Sin. 15° 23′ 30″=	9.450560	
Sin. 73° 36′ 30″=	9.981979	
Log. 10 chs.=	1.000000	Mean 34 chs.
=34.99 chs.	1.531419	

Therefore the distance is 34 chs. This point is 9.50 chs. west of point of line entering valley.

32.50 Enter valley, bears S. S. E.

30.00 Offset from tangent to Parallel, to 11th mile corner. Marked stone 8 x 6 x 1 -11 M.- and deposited it 3½ feet S. earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides 4C- -N. M.- -1868- 11 M.- respectively.

No natural objects near.

Surface a high ridge (about 600 feet above valley) running to a peak.

In valley nearly level.

[fol 379] Soil 2nd rate.

West on 12th. Mile

Variation 12° 50′ East.

80.66 Offset from tangent to Parallel to 12th mile corner, on flat sand stone, marked —12M— Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 9 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides 4C- -NM- -1868- -12M- respectively.

From which point a

Saddle mound bears N. 45 W. 30 chs. dist.

Pyramid mound bears N. 65 E. 50 chs. dist.

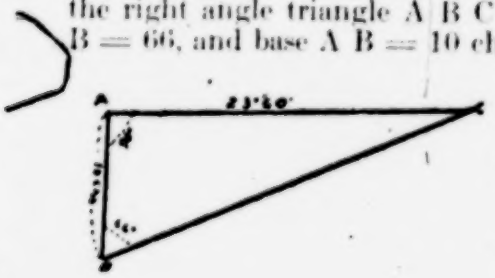
Chains

Point of Bluff bears S. 12 W. 60 chs. dist.
Surface nearly level valley.
Soil 2nd rate.

West on 13th Mile

Variation 12° 50' East.

62.30 It being impossible to measure with chain on line, I found the right angle triangle A B C measured angles A = 90° B = 66, and base A B = 10 chs.



Sin. 23° 51' = 9.606751
Sin. 66° 09' = 9.961235
Log. 10 chs. = 1.000000
22.60 chs. 1.354484

64.00 Foot of bluff, 500 feet high.
80.00 Place for 13¼ mile corner, on side of bluff and impossible to establish corner.
Surface except bluff, rolling prairie.
Soil 2nd rate.
July 23rd. Measuring chain compared with standard and found correct.

West on 14th Mile

Variation 12° 50' East.

4.85 Top of bluff. Built witness mound of cobble stones, 4 feet high. Set sand stone 20 x 16 x 8 marked on the North, South, and West sides -C.- -N. M.- -1868- respectively.
34.76 Top of sand stone bluff, bears S. S. E.
62.83 Enter valley, bears S. S. E.
80.00 Offset from tangent to Parallel to 14th mile corner.
[fol. 380] Marked stone 8 x 6 x 3 -14 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound. 2 feet square and 18 in. deep. Set sand stone 22 x 13 x 13, projecting 8 in. above mound, marked on the North, South, East and West sides -C.- -N. M.- -1868- 14 M.- respectively.
No natural objects near.
Surface, except bluff, gently rolling prairie.
Soil 2nd rate.

Chains

West on 15th Mile

Variation 12° 39' East.

20.00 Leave valley, bears S. E.

80.00 Place for 15th mile corner on side of bluff. Impossible to establish same.
Surface cut up by deep canons.
Soil 3rd rate.

West on 16th Mile

Variation 13° East.

60.00 Leave canon, bears E. S. E.

80.00 Offset tangent to Parallel to 16th mile corner.
Marked stone 8 x 5 x 3 -16 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 40 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 10 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M. -1868- -16 M.- respectively.
From which point a.
Scrub cedar tree, bears N. 85 W., 66 lks. dist.
Three pyramid mounds, centre one, bears N. 20½ W.
Saddle mound, bears S. 67½ W.
Conical mound, bears S. 56 W.
Surface broken, except last 20 chs.
Soil 3rd rate.

West on 17th Mile

Variation 13° East.

8.50 To top of bluff. It being impossible to measure with chain on line, I formed the right angle triangle A B C and A D C, measured angles A = 90 B = 76° 20' 30" D = 70° 02' 30" and sides A B = 20.08 chs., side A D = 30 chs.

[fol. 381] Sin. 13° 39' 30" ..... = 9.373454
Sin. 76° 20' 30" ..... = 9.987342
Log. 20.08 chs. ..... = 1.302764

82.63 chs. 1.917152

Chains

	Sin. 49° 57' 30" =	9.883183	
	Sin. 70° 02' 30" =	9.973101	
	Log. 30 chs =	1.477121	Mean 82.62 chs. to flag
	82.61 chs	1.917039	

36.00 Enter valley, bears S. E.
60.00 Leave valley, bears S. E. and ascend bluff.
80.00 Place for 18th mile corner on side of bluff and impossible to establish corner.
Surface broken.
Soil 3rd rate.
July 24th. Measuring chain compared with standard and found correct.

West on 18th Mile

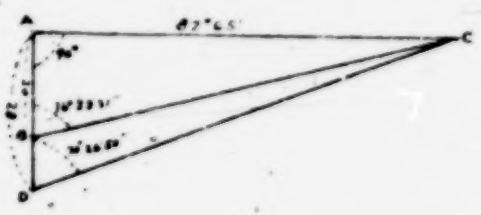
Variation 13° East.
10.50 Top of bluff. Built witness mound of stone 4 feet high, marked on the North, South and West sides "C. - N. M. - 1868. - respectfully, and enter scattering pinon. Pine timber bears N. N. W.
46.00 Leave scattering timber and enter high prairie, bears North.
80.00 Offset from tangent to Parallel to 18th mile corner near edge of bluff. Marked stone 8x4x3, "18 M." and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound 10 in. deep—on account of the stone deeper pits could not be dug. Set sand stone 36x18x4 projecting 8 in. above mound marked on the North, South, West and East sides "C. - N. M. - 1868. - 18 M." - respectively.
No natural objects near.
Surface rolling, mostly high prairie.
Soil 3rd. rate.

Chains.

West on 19th Mile

Variation 13° 65' East.

0.00 Top of bluff, bears S. S. E. It being impossible to measure with chain on line I formed the right angle triangle A. B. C.
[fol. 382] A D C Measured angles A = 90 B = 76 23 31 D = 70 26 30.
sides A B = 20 chs. and A D = 28 chs.



Sin. 76° 23' 30" . . . . . = 9.987634
Sin. 13° 36' 30" . . . . . = 9.371591
Log. 20 chs. . . . . = 1.301030
82.63 chs. 1.917073

Sin. 18° 42' 40" = 9.506230
Sin. 71° 17' 20" = 9.976418
Log. 28 chs. = 1.447158
82.67 chs. 1.917346

Mean 82.64½ chs.

Measured back from flag, East 355 lks.

80.00 Offset from tangent to Parallel to 19th mile corner on side hill. Marked sand stone 10x6x3 -19 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high over same. Dug pits 16 lks. East and West from base of mound, 2 feet square and 18 ins. deep. Set sand stone 26x11x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.-N. M.- -1868- -19 M.- respectfully.
No natural objects near.
Surface nearly all bluff.
Soil 3rd rate.

West on 20th Mile

Variation 7° to 18° East.

2.65 To top of bluff, bears S. E.

80.00 Offset tangent to Parallel to 20th mile corner, on side of hill.
Marked sand stone 6x5x4 -20 M.- and deposited it 3½ feet in earth. Built conical mound of cobble stone, over same, 4 feet high. Impossible to dig pits on account of stone.

Chains

Set sand stone 18x10x6 projecting 6 in. above mound, marked on the North, South, East and West sides -C.- -N. M.- -20 M.- -1868 respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

West on 21st Mile

Variation 8° to 18° East.

19.10 A sand stone boulder, 6 feet above ground, 5 feet high, and
[fol. 383] 6 feet diameter.

80.00 Offset from tangent to Parallel, to 21st mile corner, on rock, marked -21 M.-. Built conical mound of stone, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 3 feet square and 18 in. deep. Set sand stone 24x7x5, projecting 8 in. above mound, marked on the North, South, West and East side, -C.- -N. M.- -1868- -21 M.- respectively.
No natural objects near.
Surface broken prairie.
Soil 3rd rate.
July 25th. Measuring chain compared with standard, and found correct.

West on 22nd Mile

Variation 10° to 15° East.

7.00 Enter scattering scrub. Cedar timber on hills bears South.

79.00 Canon, bears south.

80.00 Offset from tangent to Parallel, to 22nd mile corner. Marked sand stone 8x6x4 -22M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x8, projecting 8 in. above mound. Marked on the North, South, West and East sides -C.- -N. M.- -1868- -22M.- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

West on 23rd Mile

Variation 10° to 15° East.

76.00 Enter valley of the Cimgron, bears E. S. E. Valley is hilly and stony, except near creek.

80.00 Offset from tangent to Parallel to 23rd mile corner.

Chains

Marked sand stone 10x6x4 -23 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep, marked on the North, South, West and East sides -C.- -N. M.- -1868- -23 M.- respectively.
No natural objects near.
Surface broken prairie.
Soil 2nd rate.

[fol. 384] West on 24th Mile

Variation 13° East.

80.00 Offset from tangent to Parallel to 24th mile corner.
Marked stone 12x6x4 and deposited it, 3½ feet in ground. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -24 M.- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

West on 25th Mile

Variation 13° East.

32.00 Bed of creek—dry on line—banks 5 feet high, course South and West.

35.00 Leave bed of creek, course South. Sandy bottom, and in places stony. Water just South of line.

80.00 Offset from tangent to Parallel to 25th mile corner.
Marked sand stone 8x6x3 -25 M.-, and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 38x10x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -25 M.- respectively.
No natural objects near.
Surface rolling, covered with stone.
Soil 2nd.
July 26th. Measuring chain compared with standard, and found correct.

West on 26th Mile

Variation 11° to 15° East.

56.00 Leave Cimaron valley, bears S. S. W. and enter hills.

Chains

80.00 Offset from tangent to Parallel to 26th mile corner in small ravine.
Marked stone 8x6x3 -26 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x12x4 projecting 6 in. above mound, Marked on the North, South, West and East sides -C.- -N. M.- -1868- -26 M.- respectively.
[fol. 385] No natural objects near.
Surface in valley, nearly level, balance broken and stony.
Soil 3rd rate.

West on 27th Mile

Variation 11½° to 14½° East.
22.00 Canon, 60 feet deep, 300 lks. wide, bears S. E.
72.00 Foot of perpendicular bluff, 75 feet high, bears North and South.
77.25 Wall of stone 5 chs. long, and about 15 feet high. Impregnated about 15% with magnetic iron bears E. S. E. and W. N. W.
80.00 Offset from tangent to Parallel, to 27th mile corner. Marked stone 10x6x4 -27 M.- and deposited it, 3½ feet in earth. Built conical mound of earth and stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x10x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -27 M.- respectively.
No natural objects near.
Surface broken, covered with various kinds of thick brush.
Soil 3rd rate.
July 27th. Measuring chain compared with standard and found correct.

West on 28th Mile

Variation 13° East.
80.00 Offset from tangent to Parallel to 28th mile corner. Marked sand stone 10x6x3 -X and deposited it 3½ feet in earth. Built conical mound of cobble stone, 4 feet high, over same. Dug pits to 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x10x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -28 M.- respectively.
No natural objects near.
Surface broken prairie, covered with stone and cactus.
Soil 3rd rate.

Chains

West on 29th Mile.

Variation 13° East.

13.40 Canon, 300 feet deep, bears N. N. W.

33.76 Over same, bears N. N. W.

61.00 Descend into canon, 400 feet deep, bears N. W. and S. W.,
[fol 386] and enter scattering scrub Pine and Cedar timber. Sides of canon and bluff covered with a promiscuous growth of scrub oak and various kinds of brush.

80.00 Offset from tangent to Parallel to 29th mile corner.
Deposited sand stone 10x8x4, 6 in. in earth, marked x, impossible to dig deeper. Built conical mound of sand stone, 4 feet high, over same. Impossible to dig pits, on account of stone. Set sand stone, 26x10x5 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -29 M.- respectively.
No natural objects near.
Surface broken and stony, covered with Oak, sage and other brush.
Soil 3rd rate.

West on 30th Mile

Variation 13° 10' East.

0.72 Dry bed of Creek, 15 lks. Wide, stony bottom, course N. N. W.

15.50 Dry bed of creek, 15 lks. wide, stony bottom, course E. N. E.

35.00 Bend in dry bed of creek, 15 lks. wide, filled with large sand stone boulders, course E. N. E. and E. S. E.

41.30 Foot of perpendicular bluff, 50 feet high, bears North and South.

80.00 Offset from tangent to Parallel to 30th mile corner.
Marked sand stone 8x6x4 -30 M.-, and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 42x7x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -30 M.- respectively.
No natural objects near.
Surface 1st 50 chs. very broken and stony, covered with Oak and sage brush, balance gently rolling prairie.
Soil 3rd rate.
July 28th. Measuring chain compared with standard and found correct.

Chains

West on 31st Mile

Variation 13° 11' East.

80.00 Offset from tangent to Parallel, to 31st mile corner.

[fol. 387] Marked sand stone 10 x 6 x 4 -31M-, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26 x 12 x 10 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -NM- -18- -31M- respectively.

No natural objects near.

Surface rolling prairie.

Soil 3rd rate.

West on 32nd Mile

Variation 13° East.

10.00 Enter brush and scattering Pine timber bears S. E.

27.00 Canon, bears S. S. W.

36.80 Over same, 300 feet deep, bears S. S. W.

51.30 Large cedar tree, about 6 feet at base, and 15 feet high.

80.00 Offset from tangent to Parallel 7.78 lks. to 32nd mile corner.

Marked stone, 8 x 6 x 3 -32M- and deposited it 3½ in earth. Built conical mound of earth, 4 feet high, over same. Impossible to dig pit on account of stone. Set sand stone 26 x 8 x 4 projecting 8 in. above mound marked on the North, South, West and East sides -C- -NM- -1868- -32M- respectively.

No natural objects near.

Surface covered with stone.

Soil 3rd rate.

Astronomical monument No. 1 is 12.50 lks. East of said corner, which is represented by a sand stone 75 x 14 x 11, set 3 feet in earth. Built mound of stone, 5 feet at base and 32 in. dia. Dug pits 6 feet from base of mound, on the North, South, West and East sides, 2 feet square and 18 in. deep. Monument marked on the North, South, West and East sides "Colorado" "New Mexico" "1868" "37 N. L."

No natural objects near.

July 29th. Measuring chain compared with standard and found correct.

Chains

Observations made on Polaris Aug. 2nd, 1868, P. M. and Aug. 3rd, 1868, A. M. Chronometer fast, on mean Solar time, at 12 M.—Aug. 2nd 5. 48. 59. 44

[fol 398]

	h ′ ″
Aug. 2nd, P. M. Polaris Chronometer time	10. 30. 24
Aug. 3rd, A. M. do do do	9. 58. 35
Chronometer interval	11. 28. 11
Correction for rate	14.7
	11. 28. 25.7
Reduction to sidereal time	1. 53.8
Sidereal interval	11. 30. 19.5
	−12
Sidereal time, less 12h	29. 45.5

Rate of chronometer 28.34 per day.

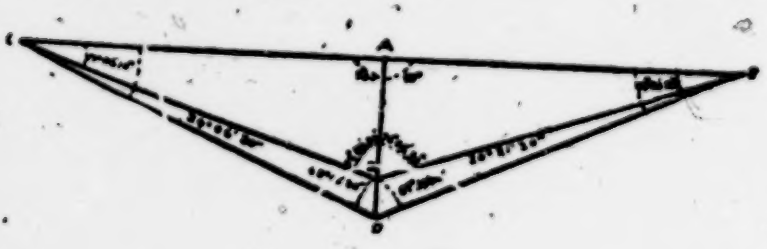
△	8.90′ .25″ = 13353.75	Log.	4.1256033
—	Cot. 88s 36′ .08″ =		8.3887820
2	Sec. 37s		0.0976514
	409.28		2.6120367

Error of Asimuth 6.49″ .28″ East.

West on 33d Mile

Variation 13° 20′ East.

1.50. Top of bluff, bears N. N. W. It being impossible to measure with chain the sides of the bluff, from its top, nearly directly West of 33d mile corner, I set one flag in valley, and one on high ridge, West of valley, and from flag in valley, I formed the right angle triangle, with same perpendicular ABC, ADC, ABE and ADE. Measured the Angles A = 90 B = 72.53′ .50″ D = 65.13′ .30″ B = 76.06′ .30″ D = 69.38′ .40. Measured sides AB = 20 chs. AD = 30 chs.



Chains				
	Sin. 17° .06' .10" =	9.468475	Sin. 24° .46' .30" =	9.622372
	Sin. 72° .53' .50" =	9.980357	Sin. 65° .13' .30" =	9.955867
	Log. 20 chs. =	1.301030	Log. 30 chs. =	1.477121
	65.00	1.812862	65.00	1.812360
[fol. 389]	Sin. 13° .53' .30" =	9.386368	Sin. 20° .24' .20" =	9.541386
	Sin. 76° .06' .30" =	9.987108	Sin. 69° .38' .40" =	9.971995
	Log. 20 chs. =	1.301030	Log. 30 chs. =	1.477121
	80.88 chs.	1.907870	80.86 chs.	1.907730

Mean 80.87 chs. to flag on West of bluff.

47.50 Foot of bluff, bears S. S. W. and enters valley which is Prairie land, covered with grass.

73.00 Dry bed of creek, 30 lks. wide, 8 feet deep, stony bottom course S. S. E.

78.00 Leave valley, bears S. S. E., and ascend hill.

80.00 Offset from tangent to Parallel, to 33d mile corner, on a large flat rock, marked with a +. Built a conical mound of stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 10 x 6, projecting 6 in. above mound marked on the North, South, West and East sides -C.- -N. M.- -1868- -33M.- respectively.
From which point a
Sand stone boulder, 10 x 6 x 7 feet bears North 7 lks.
Surface in valley level, balance broken.
Soil 1st rate.

West on 34th Mile

Variation 13° 25' East

65.80 Top of high Plateau, bears South.

73.37 Top of high Plateau, bears South.

80.00 Offset from tangent to Parallel to 34th mile corner, on side hill. Marked stone 8 x 6 x 4 -34M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Impossible to dig pits on account of stone. Set volcanic stone 30 x 16 x 13, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- 34M.- *respectfully*.
No natural objects near.
Surface broken.
Soil 3rd rate.

West on 35th Mile

Variation 13° 25' East.

10.00 Level Plateau, bears North and South.

80.00 Offset from tangent to Parallel, to 35th mile corner.

Chains

Marked stone 10 x 6 x 4 -35M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over [fol. 396] same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -35M.- respectively.

From which point

Spanish Peak, bears N. 63¼ W.
Spanish Peak, bears N. 67½ W.
Mound, bears N. 50½ W.
Point of bluff, bears N. 19½ W.
Point of bluff, bears N. 3 E.
Hay stack mound, bears N. 52½ E.
Hill, bears S. 29 W.
Mound, bears S. 50½ W.
Mound, bears S. 57 W.
Mound, bears S. 58¼ W.
Hill, bears S. 62½ W.
Surface level Prairie.
Soil 2nd rate.
Aug. 3d. Measuring chain compared with standard and found correct.

West on 36th Mile

Variation 13° 27′ East.

80.00 Offset from tangent to Parallel, to 36th mile corner. Marked stone 8 x 6 x 3 -36M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26 x 10 x 4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -36M.- respectively. No natural objects near.

West on 37th Mile

Variation 13° 35′ East.

50.00 Enter scattering pinon Pine timber, bears North.
55.00 Leave same, bears S. E.
65.00 Top of perpendicular bluff, 3 feet high, bears S. S. W.
79.50 Enter valley, bears S. S. W.
80.00 Offset from tangent to Parallel, to 37th mile corner.

Chains

Marked stone 4 x 3 x 3 -37M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x
[fol. 391] 12x10, projecting 8 in. above mound, marked on the North, South, West and East sides, -C.- -N. M.- -1868- -37 M.- respectively.
No natural objects near.
Surface broken and in places covered with scrub pinon.
Pine timber.
Soil 3rd rate.

West on 38th Mile

Variation 13° 30′ East.

57.00 Dry bed of creek, 10 lks. wide, stony bottom, course E. S. E.

80.00 Offset from tangent to Parallel to 38th mile corner, situated about 250 lks. South of head of dry creek. Marked stone 10x6x3 -38 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28x16x10, projecting 8 in. above mound, marked on the North, South, West and East sides, -C.- -N. M.- -1868- -38 M.- respectively.
No natural objects near.
Surface broken and stony.
Soil 3rd rate.

West on 39th Mile

Variation 13° 30′ East.

64.20 Foot of perpendicular cliff, 125 feet high, bears E. S. E.

69.50 Enter ravine, 50 lks. wide, bears North.

79.00 Enter scrub Pine and Cedar timber, bears North.

80.00 Offset from tangent to Parallel, to 39th mile corner.
Marked stone 10x6x4 -39 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 27x12x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C. -N. M.- -1868- -39 M.- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

Chains

[fol. 392]

West on 40th Mile

Variation 13° 27′ East.
5.00 Enter canon, bears N. N. E.
12.00 Leave canon, bears N. N. E.
50.00 Leave scattering scrub Pine and Cedar timber and top of perpendicular cliff, 40 feet high, bears S. S. W.
80.00 Offset from tangent to Parallel, to 40th mile corner. Marked stone 6x5x4 -40 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 32x16x10. projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -40 M.- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

West on 41st Mile

Variation 13° 30′ East.
63.66 Top of bluff, bears E. N. E.
80.00 Offset from tangent to Parallel, to 41st mile corner. Marked stone 8x6x3 -41 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -41 M.- respectively.
From which point
A pinon Pine tree, bears N. 80 W. 18 lks. dist.
No other tree near.
Surface broken.
Soil 3d rate.
Aug. 4th. Measuring chain compared with standard and found correct.

West on 42nd Mile

Variation 13° 30′ East.
0.40 Enter scrub pine timber, bears North.
10.00 Leave same, and enter brush.
68.00 Top of bluff, and enter canon, bears E. N. E.
80.00 Offset from tangent to Parallel to 42nd mile corner. Marked stone 6x5x4 and deposited it 3½ feet in earth,

Chains

Built conical mound of earth and stone 4 feet high over same. Dug pits 10 lks. East and West from base of mound.
[fol. 393] 2 feet square, and 18 in. deep. Set sand stone 30x18x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -42 M.- respectively. From which point
A large sand stone boulde , bears South, 10 lks. dist. with a scrub cedar tree just West of stone.
Surface broken.
Soil 3rd rate.

West on 43rd Mile

Variation 13° 25' East.
15.00 Leave canon, bears E. N. E.
49.00 Enter canon, bears S. E.
50.50 Leave canon, bears S. E.
80.00 Offset from tangent to Parallel to 43rd mile corner. Marked stone 10x6x3 -43 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound. 2 feet square and 18 in. deep. Set sand stone 24x8x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -43 M.- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

West on 44th Mile

Variation 13° 20' East.
30.00 Ascend hill, bears N. N. W.
58.00 Enter canon, bears N. N. E.
61.00 Leave canon, bears N. N. E.
80.00 Onset from tangent to Parallel, to 44th mile corner, on side hill. Marked stone 8x6x4 -44 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x7x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -44 M.- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

Chains

[fol 394]

West on 45th Mile

Variation 13° 20' East.

50 00 Offset from tangent to Parallel to 45th mile corner.
Marked stone 8x6x4 -45 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x16x11, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -45 -M.- respectively.
No natural objects near.
Surface hilly and in place covered with volcanic boulders.
Soil 3d rate.

West on 46th Mile

Variation 13° 20' East.

36 00 Enter valley, bears South.

25 20 Wagon road, bears S. E.

13 00 Leave valley, bears S. W., and ascend hill, foot of Ratoon mountains.

80 00 Offset from tangent to Parallel to 46th mile corner.
Marked stone 10x6x4 -46 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 40x20x12, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -46 M.- respectively.
No natural objects near.
Surface broken.
Soil 3rd rate.

West on 47th Mile

Variation 13° 20' East.

33 00 To perpendicular cliff, about 60 feet high, bears E. N. E. Side of cliff covered with volcanic stone.

80 00 Offset from tangent to Parallel to 47th mile corner.
Marked stone 8x6x4 -47 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x16x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -47 M.- respectively.
No natural objects near.

Chains

[fols. 395] Surface 1st 35 chs. broken, covered with volcanic stone, balance level.
Soil 2nd rate.
Aug. 5th. Measuring chain compared with standard and found correct.

West on 48th Mile

Variation 11° to 15° East.

50.00 Top of bluff, 800 feet high, above the level of the country North, and for 200 feet, nearly perpendicular.
I offset North 3 chs. in order to measure the line, thence West 20 chs. offset back to line.

80.00 Offset from tangent to Parallel to 48th mile corner.
Marked stone 10x8x3 -48 M.- and deposited it 3½ feet in earth. Built conical mound of stones 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x12x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -48 M.- respectively.
No natural objects near, surface of upland level, covered with a fine growth of grass.
Soil 2nd rate.

West on 49th Mile

Variation 10° to 15° East.

48.00 Canon, bears N. N. E. It being impracticable to measure with chain on line, on account of ridge, thick brush and cliffs, I offset North 50 chs. and measure West 112 chs. offset to south line and set 50th mile corner.

80.00 Place for 49th mile corner, on side of cliff, impossible to establish corner.
Surface mountainous, covered with stone and various kinds of brush.

West on 50th Mile

Variation 11° to 18° East.

80.00 Offset from tangent to Parallel, to 50th mile corner, near top of bluff. Marked stone 12x10x4 -50 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Set volcanic stone 20 x 10 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -50 M.-
No natural objects near.

Chains

[fol. 396] Surface mountainous and stony, covered with Oak and various kinds of brush.
Soil 3d.

West on 51st Mile

Variation 11° to 15° East.

80.00 Offset from tangent to Parallel, to 51st mile corner on side of hill, near foot. Marked stone 10x6x4, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20 x 10 x 8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -51 M.- respectively.
No natural objects near.
Surface broken, covered with Oak and various other kinds of brush.
Soil 3d rate.

West on 52nd Mile

Variation 11° to 15° East.

63.00 Enter low scrub pinon pine timber, bears North and South

80.00 Offset from tangent to Parallel to 52nd mile corner, in scrub pinon Pine timber. Marked stone 10x6x4, -52 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over stone. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x8, projecting 8 in above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -52 M.- respectively.
No natural objects near.
Surface broken, covered with Oak and other kinds of brush and in places scattering pinon Pine timber.
Soil 3rd rate.

West on 53d Mile

Variation 12° to 11° East.

26.00 Leave scrub Pine and enter brush Prairie bears North and South.

26.50 Dry bed of Creek, 8 lks. wide, stony bottom, course N. N. W.

80.00 Offset from tangent to Parallel, to 53d mile corner.

Chains

Marked stone 5x4x3 -33 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28x12x10, projecting 8 in. above mound, marked on the North, South, [fol. 397] West and East sides -C.- -N. M.- -1868- -53 M.- respectively.

No natural objects near.

Surface broken, nearly covered with various kinds of brush.

Soil 3d rate.

Aug. 6th. Measuring chain compared with standard and found correct.

West on 54th Mile

Variation 12° to 14° East.

27.00 Enter scattering scrub pinon Pine timber, bears South.

80.00 Offset from tangent to Parallel, to 54th mile corner. Marked stone 5x4x3 -353 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set pinon Pine post, 8 feet long, and 6 in. square, leveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides, -C.- -N. M.- -1868- -54 M.- respectively.

No natural objects near.

Surface broken, nearly covered with scattering pinon Pine timber.

Soil 3d.

West on 55th Mile

Variation 12° to 14° East.

63.00 Leave scattering pinion Pine timber and scrub Oak brush, bears North and South.

75.30 Creek, 6 lks. wide, clear water, and gentle current, course N. N. W.

80.00 Offset from tangent to Parallel to 55th mile corner. Deposited stone 8x4x4 marked -55 M.- 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x12x10, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -55 M.- respectively.

No natural objects near.

Surface broken.

Soil 2nd rate.

Chains

West on 56th Mile

Variation 10° to 15° East.

37.00 Dry bed of Creek, 10 lks. wide, stony bottom, course N. N. W.

80.00 Offset from tangent to Parallel to 56th mile corner

[fol. 398] Marked stone 8x8x6 -56 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -56 M.- respectively

No natural objects near.

Surface rolling.

Soil 2nd rate.

West on 57th Mile

Variation 10½° to 15° East.

40.00 A conical mound, covered with pinon Pine timber, bears S. 47 W.

Saddle mound, bears N. 10 E. 8 chs. dist.

80.00 Offset from tangent to Parallel, to 57th mile corner.

Marked stone 10x6x5 -57 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x12x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -57- respectively

No natural objects near.

Surface rolling.

Soil 2nd rate.

West on 58th Mile

Variation 11° to 15° East.

76.00 Top of perpendicular volcanic rock bluff 100 feet above bed of creek = Cabin bears N. 25 W.

78.50 Creek, 15 lks. wide, clear water, rapid current, gravelly bottom, course North.

80.00 Offset from tangent to Parallel, to 58th mile corner.

Marked stone 10x6x4, -58 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x10x12, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -58 M.- respectively.

From which point

Chains

Cabin bears N. 8 W.
Wall of rock, 30 feet high, bears N. 55 W. about 4 lks. dist.
[fol. 399] Surface broken Praire.
Soil 2nd rate.

West on 59th Mile

Variation 12° to 15° East.
0.35 A ditch dug for irrigation.
1.00 Trail bears North.
11.00 A natural and most complete wall of volcanic stone, extending in a straight line, for a distance of 4 miles. A great portion of the stones composing it are trapezuin, and some parallelopiped in shape, and from their appearance appear to have been angled, and set by the skilled artisan many centuries ago. They will average in weight about 400 lbs; the wall in height to be 50 feet, and is from 50 to 200 feet above valley. The South side portion of the Wall is of various heights, while the North side, is more regular and has a uniform height of about 5 feet. It bears N. 87 E., and S. 87 W.
40.00 Cabin, bears N. 31 E.
80.00 Offset from tangent to Parallel, to 59th mile corner.
Marked stone 8 x 6 x 4 59M. and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in deep. Set volcanic stone 28 x 42 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides C. N. M. 1868 59M. respectively.
No natural objects near.
Surface broken.
Soil 2nd rate.
Aug. 7th. Measuring chain compared with standard and found correct.

West on 60th Mile

Variation 9° to 22° East.
35.00 Cabin bears N. 48 W.
80.00 Offset from tangent to Parallel to 60th mile corner.
Marked stone 10 x 6 x 3 60M. and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr. and 18 in. deep. Set volcanic stone 20 x 16 x 10, projecting 6 in. above mound, marked on the North, South, West and East sides C. N. M., 1868 60 M. respectively.

Chains

[fol. 400] No natural objects near.
Surface broken.
Soil 2nd rate.

West on 61st Mile

Variation 14° East.

49.00 Ravine and dry bed of creek, 10 lks. wide, 10 lks. South, course North.

79.50 Creek, 15 lks. wide, clear water, rapid current, gravelly bottom, course N. E.

80.00 Offset from tangent to Parallel, to 61st mile corner.
Marked stone 6 x 5 x 4 61M. and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28 x 8 x 6 projecting 8 in. above mound, marked on the North, South, West and East sides C. N. M. 1868 61M. respectively.
No natural objects near.
Surface broken.
Soil 2nd rate.

West on 62nd Mile

Variation 13° East.

2.30 Creek, 15 lks. wide, clear water, rapid current, gravelly bottom, course E. S. E.

3.30 Same creek, 15 lks. wide, clear water, rapid current, stony bottom, about 2 in. deep, course E. N. E. Scattering Oak brush on banks.

15.00 Leave valley, bears N. E.

80.00 Offset from tangent to Parallel to 62nd mile corner, on top of hill.
Marked stone 10 x 6 x 4 62M. and deposited it, 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in deep. Set volcanic stone 18 x 16 x 10, projecting 6 in. above mound, marked on the North, South, West and East sides C. N. M. 1868 62M. respectively.
No natural objects near.
Surface hilly.
Soil 2nd rate.

West on 63d Mile

Variation 12° to 14° East.

20.00 Enter valley, bears N. N. W.

33.30 Dry bed of Creek, 20 lks. wide, stony bottom, banks 6 feet [fol. 401] high, course S. S. E.

Chains	
60.00	Leave valley, bears N. N. E.
80.00	Offset from tangent to Parallel 7. 30. 1 lks. to 63d mile corner on side hill.

Marked stone 10 x 6 x 3 63M. and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 22 x 11 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides C. N. M. 1868, 63M. respectively.

No natural objects near. Surface broken. Soil 3d rate.

Aug. 8th. Measuring chain compared with standard and found correct.

Astronomical monument is 21.00 chs. East of said corner, and is represented by a charred cedar post, 11 feet long and 12 in. square. Marked volcanic stone 12 x 12 x 4 A. Sta. No. 2 37 N. L. and deposited it in earth. Set post 4 feet in earth, marked on the North, South, East and West sides "Colorado" "New Mexico" "1868" "37 NL." Built mound of cobble stones, 6 feet base and 4 feet high. Dug pits 6 feet, East, West, North and South, 2 feet square and 18 in. deep, from base of mound.

Observations made on Polaris, lower and upper culminations for Asimuth Aug. 9th P. M. Aug. 10th, A. M.

Chronometer fast on mean Solar time, Aug. 9th M, 5. 50. 10. with a loosing rate of 22 5 per day, on mean Solar time.

	h	m	s
Time of lower transit as marked by chronometer, Aug. 9th P. M.—	9	26.	50
Time of upper transit, Aug. 10th A. M.	9	24.	30
Chronometer interval	11.	57.	40
Correction for rate			11.2
Mean solar interval	11.	57.	51.2
Reduction to sidereal time		1.	57.9
Sidereal interval	11.	59.	49.1
	—12		
Less than 12			11

Chains

[fol. 402] Computation for error Asimuth

Δ = 05′ .5 × 82.5	Log. =	1.916454
d cot. 8[illegible].369	=	8.392381
2 Sec. 37	=	0.097651
Error 2″ .5		0.406486

Observations at 63d mile corner, 21 chs. West of Astronomical Monument No. 2.

West on 64th Mile

Variation 13° 20′ East.

56.50 Canon, 200 lks. wide, bears North.
61.00 Canon, 200 lks. wide bears N. N. E.
75.00 Top of bluff, bears North.
80.00 Offset from tangent to Parallel to 64th mile temporary corner.
Surface broken prairie.
Soil 3d rate.

West on 65th Mile

Variation 11° to 14° East.

29.00 Dry bed of Creek, high banks, course N. W.
48.50 Bend in creek 20 lks. wide, clear water, swift current, stony bottom, banks about 4 feet high, course E. S. E. and E. N. E.
58.00 Same Creek, 20 lks. wide, course East.
75.00 Bend in same Creek, course East.
80.00 Offset from tangent to Parallel, to 65th mile temporary corner.
Surface very broken.
Soil 3d rate.

West on 66th Mile

Variation 12° to 14° East.

5.00 Leave valley, bears South.
24.75 Top of hill.
59.00 Spring branch, 3 lks. wide, course S. E.
68.50 Spring branch, 2 lks. wide course S. E.
80.00 Offset from tangent to Parallel, to 66th mile, temporary corner.
Surface mountainous, covered with volcanic stone and thick growth of Oak and black locust and various other kinds of brush and vines.

Chains

Soil 3rd rate.

[fol 403] Aug. 10th Measuring chain compared with standard, and found correct.

West on 67th Mile

Variation 11° to 15° East.

80.00 Offset from tangent to Parallel to 67th mile, temporary corner.

Surface broken, covered with stone and heavy growth of oak, black locust and various kinds of brush.

Soil 3d rate.

West on 68th Mile

Variation 11° to 15° East.

15.00 Highest point of ridge, 1000 ft. above creek valley.

70.20 Creek, 25 lks. wide, clear water, rapid current and stony bottom, course S. S. E.

80.00 Place for temporary 68th mile corner, but impossible to establish it.

Surface mountainous, covered with volcanic stone and thick undergrowth of Oak, black locust and various other kinds of brush.

Soil 3rd rate.

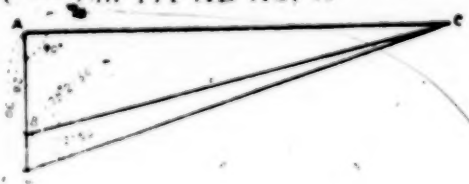
West on 69th Mile

Variation 12° to 14° East.

31.80 Top of perpendicular bluff, 150 feet high, bears S. S. E.

32.60 Built cobble stone witness mound. Set volcanic stone 28x 12x10, marked on the North, South and West sides -C.- -N. M.- -1868- respectively.

The surface between the top of ridge, 15 chs. West of the 68th mile corner, being very rough and broken, making it impracticable to measure the distance with chain with accuracy from that point, and in order to fest the measurement, I formed the triangle ABC and ADC, measured angles A = 90 B= 78° .21′ .50″ D = 72° .50′, hence we have the formula angle C — Sin 111 AB AC, cr



Sin. 11° .38′ .10″ = 9.304697
Sin. 78° .21′ .50″ = 9.990981
Log. 20 chs. = 1.301030

97 chs. 10 lks 1.987214

Chalus

[fol. 404]

Sin. 17° 10′ =	9.470046		
Sin. 72° 50′ =	9.980208		
Log. 30 chs. =	1.477121	Mean 97 chs. 11 lks.	
		to flag.	
97 chs. 12 lks.	1.987283		

There being 49 lks. difference, between the computation, and measurement of the distance of the line, from A to C. I adopted the computed distance, making the distance to the stone monument 97 chs. 11 lks. Therefore the stone monument is 32 chs. 11 lks. on 69th mile corner.

80.00 Offset from tangent to Parallel to 69th mile temporary corner.

Surface in canon broken, covered with a thick growth of oak, black locust, ash and other kinds of brush.

Soil 2nd rate.

Surface after leaving canon, gently rolling.

Soil 3rd rate.

Aug. 11th. Measuring chain compared with standard, and found correct.

West on 70th Mile

Variation 11° to 17° East.

80.00 Offset from tangent to Parallel, to 70th mile, temporary corner.

From which point

A volcanic stone, projecting 36x30x24 in. above surface, is 39 lks. West of temporary corner, marked +.

Surface gently rolling.

Soil 2nd rate.

West on 71st Mile

Variation 11° to 17° East.

53.50 Ledge of Granite rock, bears S. W. and N. E.

80.00 Offset from tangent to Parallel, to 71st mile, temporary corner.

Surface rolling.

Soil 2nd rate.

West on 72nd Mile

Variation 11° to 17° East.

4.00 Highest point on Plateau, from which a point of perpendicular stone bluff, bears S. 27 W.

Chains

Conical mound in gulch, bears S. 12 W.
Point of bluff, bears S. 3½ W.
[fol. 405] Large hill, bears S. 17½ E.
3 mounds, centre one, highest, bears S. 26 E.
Saddle mound bears S. 54 E.
High peak, bears S. 56¾ E.
High peak, bears S. 67½ E.
North point of high mountain ridge, bears N. 64 E.
80.00 Offset from tangent to Parallel to 72nd mile temporary corner.
Surface gently rolling.
Soil 2nd rate.

West on 73d Mile

Variation 10° to 16° East.
0.70 Top of perpendicular volcanic ledge, 200 feet high.
80.00 Offset from tangent to Parallel, to 73d mile temporary corner.
Surface very broken.
Soil 3rd rate.
Aug. 12th. Measuring chain compared with standard and found correct.

West on 74th Mile

Variation 10° to 16° East.
15.00 Creek, 10 lks. wide, clear water, rapid current, stony bottom, high banks, course E. S. E.
80.00 Place for 74th mile corner, on side of ridge.
Impossible to establish temporary corner.
Surface mountainous, covered with a thick growth of Oak and black locust and various kinds of brush and vines, they being so thick and compact as to be almost impossible to penetrate them.
Soil 3d rate.

West on 75th Mile

Variation 10° to 16° East.
12.00 Creek, 15 lks. wide, clear water, rapid current, stony bottom, course S. W.
60.00 Enter valley, bears E. S. E.
60.30 Indian trail, bears E. S. E.
65.00 Creek, 18 lks. wide, clear water, gentle current, sandy bottom, course E. S. E.
80.00 Place for 75th mile corner, impossible to establish temporary corner.

Chains

Surface mountainous, covered with a thick growth of Oak,
[fol. 406] Locust and various other kinds of brush and vines.
Soil 3d rate.

West on 76th Mile

Variation 10° to 16° East.

62.05 Top of bluff, 1000 feet high. Built a witness cobble stone mound and set volcanic stone 30x12x10, in same, marked on the North -C.- South -N. M.- West -1868-. It being impracticable to measure with chain, on line with accuracy on account of the mountainous character of the country between the 72nd mile corner, and this point, in order to test the same, I formed the right angle triangle ABC and ADC, the point, A, being the witness corner, and point C the 72nd mile corner. Measured angles A = 90° B = 75° .07′ .40″ and angles D = 68° .16′ .50″. Sides AB = 80 chs. side AC = 120 chs.

Sin. 14° .58′ .20″ =	9.409365	
Sin. 75° .07′ .40″ =	9.985202	
Log. 80 chs. =	1.903090	
301.22 chs.	2.478927	

Sin. 21° .43′ .10″ =	9.568275	
Sin. 68° .16′ .50″ =	9.968019	
Log. 120 chs. =	2.079181	Mean 301.22 chs.
301.22 chs.	2.478925	

Therefore, the computed distance 301.22 chs. is 83 lks. less than the distance measured with chain, which I think is much more accurate than chain measurement, as great pains was taken to have the angles and bases measured as accurate as possible. Therefore I adopted the computed distance, making the cobble stone mound 75 miles 61 chs. and 22 lks.

66.50 Enter canon, 200 feet deep, bears N. E.

80.00 Offset from tangent to Parallel, to 76th mile, temporary corner in canon.

[fol. 407] Surface mountainous, covered with Oak and Locust brush.
Soil 3rd rate.

Chains

Aug. 13. Measuring chain compared with standard and found correct.

West on 77th Mile

Variation 10° to 16° East.
2.50 Leave canon, bears North.
74.20 Indian trail, bears S. S. W.
80.00 Offset from tangent to Parallel to 77th mile, temporary corner.
Surface rolling.
Soil 3d rate.

West on 78th Mile

Variation 10° to 17° East.
80.00 Offset from tangent to Parallel, to 78th mile, temporary corner.
Surface, a high, gently rolling plateau.
Soil 3d rate.

West on 79th Mile

Variation 9° to 19° East.
76.00 Top of bluff, bears North.
80.00 Offset from tangent to Parallel, to 79th mile, temporary corner.
Surface, a gradual descent to the West.
Soil stony.
3d rate.

West on 80th Mile

Variation 11° to 15° East.

chs.
51.34 Offset to Parallel, said point on parallel is 3.40 lks. South of Astronomical monument No. 3. Therefore the correction will be 17.27/100 lks. per mile.
Aug. 14th. Measuring chain compared with standard and found correct.

East on 80th Mile

Variation

chs.
80.00 Moved temporary corner 3.27.1 North, and set true corner. Marked stone 5x5x4 and deposited it 31½ feet in earth.. [fol. 408] Built conical mound of earth, 4 feet high, over same.

Chains

Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x18, projecting 8 in. above mound, marked on the North -C.- South -X. M.- West -1868- East -80 M.-

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East on 79th Mile

Variation ——.

80.00 Moved temporary corner 3.06.7 lks. North and set true corner.

Marked stone, but impossible to deposit it, on account of stone. Built conical mound of stone 4 feet high over it. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 31x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- X. M.- -1868- -79 M.- respectively. No natural objects near.

East on 78th Mile

Variation ——.

80.00 Moved temporary corner 2.86.2 lks. North, and set true corner.

Marked stone 8x6x4 -78 M.- and deposited it 3½ feet in earth. Built conical mound of earth and volcanic stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 27x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -X. M.- -1868- -78 M.- respectively.

No natural objects near.

East on 77th Mile

Variation ——.

80.00 Moved temporary corner, 2.65.9 lks. North, and set true corner.

Marked stone 8x6x4 -77 M.- and deposited it, 3½ ft. in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x10x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -X. M.- -1868- -77 M.- respectively.

No natural objects near.

Chains

[fol. 409]

East on 76th Mile

Variation ——.

80.00 Moved temporary corner 245.5 lks. North, and set true corner.

Marked stone 11x7x4 -76 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square, and 18 in. deep. Set volcanic stone 26x10x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -76- M.- respectively.

No natural objects near.

East on 75th Mile

Variation ——.

80.00 Place for 75th mile corner, on side hill, impossible to establish it.

East on 74th Mile

Variation ——.

80.00 Place for 74th mile corner on side of bluff, impossible to establish it.

East on 73d Mile

Variation ——.

80.00 Moved temporary corner 1.84.2 lks. North and set true corner.

Marked stone 10x6x8 -73 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square leveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -73 M.- respectively.

No natural objects near.

East on 72nd Mile

Variation ——.

80.00 Moved temporary corner 1.63.7 lks. North and set true corner.

Chains

Marked stone 10x5x1. -72 M.- and deposited it 3½ feet in earth. Built conical mound of volcanic cobble stones, 4 feet high, over same. Dug pits 10 lks. East and West from [fol. 410] base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x10x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -N- M.- -1868- -72 M.- respectively.
No natural objects near.

East on 71st Mile

Variation ——.

80.00 Moved temporary corner 1.43.4 lks. North and set true corner.
Marked stone 10x6x3 -71 M.- and deposited it, 3½ feet in earth. Bifilt conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr. and 18 in. deep. Set sand stone 30x12x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C- -N- M.- -1868- -71 M.- respectively.
No natural objects near.

East on 70th Mile

Variation ——.

80.00 Moved temporary corner 1.43.4 lks. North and set true corner.
Marked volcanic stone 10x6x4 -70 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26x12x8, projecting 8 in. above mound, marked on the North, South, West and East Sides -C- -N. M.- -1868- -70 M.- respectively.
No natural objects near.

East on 69th Mile

Variation ——.

80.00 Moved temporary corner 1.[illegible]3.0 lks. North and set true corner.
Marked stone 10x6x4 and -69 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20x8x7, projecting 6 in. above mound, marked on the North, South, West and East sides -C- N. M.- -1868- -69 M.- respectively.
No natural objects near.

Chains

[fol. 411] East on 68th Mile

Variation ——.

80.00 Place for 68th mile corner, but impossible to establish it.

East on 67th Mile

Variation ——.

80.00 Moved temporary corner 8.21.0 lks. North and set true corner.

Marked stone 10 x 6 x 4 -67M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28 x 10 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -67.- -N. M.- -1868- -67M.- respectively.

No natural objects near.

East on 66th Mile

Variation ——.

80.00 Moved temporary corner 6.17.0 lks. North and set true corner.

Deposited volcanic stone 8 x 6 x 3 -66M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 36 x 14 x 4 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -66M.- respectively.

No Natural objects near.

East on 65th Mile

Variation ——.

80.00 Moved temporary corner 4.13.0 lks. North, and set true corner.

Marked stone, 8 x 6 x 4 -65M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18 x 16 x 4, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -65M.- respectively. No natural objects near.

Chains

East on 64th Mile

Variation ——.

80.00 Moved temporary corner 2.00 lks. North and set true corner.

[fol. 412] Marked stone 16 x 6 x 3 -64 M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet sqr. and 18 in. deep. Set volcanic stone 18 x 16 x 10 projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -64M- respectively. No natural objects near.

Observations for Asimuth at Astronomical monument No. 3—On d Ursae Minoris, Dec. 86° 36' 40" RA h 18. m 15. s 00.4 and 51 Cephei Dec. 87° 14' 07" RA h 6. m 37. s 35

Aug. 19th. 1868, P. M.—Chronometer fast, at mean noon on Solar time h 5. m 49. s 42. with a loosing rate of 22 s per day.

	h	m	s
Chronometer time of observations of d Ursae Minoris, upper transit	2.	10.	54.
Chronometer time of observation of 51 Cephei	2.	33.	25
Chronometer interval		22.	31
Chronometer rate			0.34
Reduction to Sidereal time			3.7
		22.	35.04
Difference in RA of the two stars		22.	34.7
			.34

$\Delta = 00^s.34 = 5'' 10$ ..... Log. = 0.707570
— Cos. d 86° 36' 40" ..... = 8.771681
Cos. d 87° 14' 07" ..... = 8.683229
Sec. ϕ 37° ..... = 0.097651
Cosec. 6.09 13 ..... = 0.969827

Error 0" 19 ..... 1.229958

West on 80th Mile

Variation 13° 40' East.

51.34 Astronomical Monument No. 3 which is represented by a sand stone 75 x 20 x 12 marked on the North, West and

Chains

East sides "Colorado" "New Mexico", "1868" "37NL." Marked stone 8 x 6 x 6 -37 N. L.- 1868, and deposited it [fol. 112] under stone. Built conical mound of stone, 6 feet at base and 3 feet high.

52.00 Santa Fe road and telegraph line, bears North.

80.00 Offset from tangent to Parallel, to 80th mile, temporary corner.

Surface rolling.

Soil 2nd rate.

West on 81st Mile

Variation 13° 40' East.

1.00 Road, bears E. S. E.

4.75 Same road, bears South.

12.10 Enter 2nd rate, white Pine timber, with thick brush, bears S. E.

80.00 Offset from tangent to Parallel, to 81st mile, temporary corner.

Surface broken.

Soil 2nd rate.

West on 82nd Mile

Variation 13° 40' East.

2.25 Canon, 70 lks. wide, bears South.

36.75 Canon, 100 lks. wide, bears S. S. E.

73.00 Cabin, bears N. 18 W., about 14 chs. dist.

73.00 Canon, 200 lks. wide, bears S. S. E.

80.00 Offset from tangent to Parallel, to 82nd mile, temporary corner.

Surface, mountainous, covered with 2nd rate yellow Pine timber, and an undergrowth of Oak, wild and black locust brush.

Soil 3d rate.

West on 83d Mile

Variation 13° 42' East.

37.00 Canon, 5 chs. wide, bears S. S. E.

80.00 Offset from tangent to Parallel, to 83d mile, temporary corner.

Surface, mountainous, covered with 2nd Pine timber.

Soil 3d rate.

Chains

West on 84th Mile

Variation 13° 43′ East.

7.00 Canon, 100 lks. wide, bears N. N. E.
39.00 Canon, 200 lks. wide, bears N. N. E.
80.00 Offset from tangent to Parallel to 84th mile temporary [fol. 414] corner.

Surface mountainous, covered with 3d rate Pine timber.
Soil 2nd rate.

West on 85th Mile

Variation 13° 43′ East.

9.00 Ratoon Peak, bears N. 38½ W.
42.00 Canon, bears North.
56.00 Leave canon, bears N. N. W.
77.00 Canon, 200 lks. wide, bears N. N. W.
80.00 Offset from tangent to Parallel to 85th mile temporary corner.

Surface broken, covered with 2nd rate Pine timber and an undergrowth of Oak and wild locust brush, etc.
Soil 3d rate.

West on 86th Mile

Variation 13° 46′ East.

17.00 Canon, 200 lks. wide, bears N. N. W.
30.50 Canon, 200 lks. wide, bears N. N. W.
59.00 Canon, 200 lks. wide, bears W. S. W.
64.00 Canon, 300 lks. wide, bears N. W.
80.00 Offset from tangent to Parallel to 86th mile temporary corner.

Surface mountainous, covered with 2nd rate Pine timber and an undergrowth of black locust brush.
Soil 2nd rate.
Aug. 21st. Measuring chain compared with standard and found correct.

West on 87th Mile

Variation 13° 47′ East

8.00 Canon, 4 chs. wide, bears N. N. W.
28.50 Canon, 5 chs. wide, bears N. N. W.
61.50 Canon, 5 chs. wide, bears N. W.
80.00 Offset from tangent to Parallel to 87th mile temporary corner.

Chains

Surface broken, covered with 2nd rate Pine timber and an undergrowth of Oak and locust brush.
Soil 2nd rate.

West on 88th Mile

Variatic .3° 50' East.
25.50 Enter fallen timber, bears North.
[fol. 415]
40.00 Leave fallen timber and enter brush, bears North.
58.50 Leave brush, bears North.
73.00 Creek, 8 lks. wide, clear water, rapid current, stony bottom, course N. N. W.
80.00 Offset from tangent to Parallel, to 88th mile, temporary corner.
Surface broken, East half covered with 2nd rate Pine timber, balance covered with Oak, Locust, brush and vines.
Soil 3d rate.

West on 89th Mile

Variation 13° 50' East.
15.00 Enter scattering Pine timber, bears N. N. W.
23.00 Leave 2nd rate Pine timber, bears N. N. E.
38.50 Canon, 200 lks. wide, bears N. N. W.
77.00 Canon, 30 lks. wide, bears North.
80.00 Offset from tangent to Parallel, to 89th mile temporary corner.
Surface mountainous, covered with Oak and locust brush.
Soil 3d rate.

West on 90th Mile

Variation 13° 50' East.
11.00 Enter 2nd rate Pine timber, bears S. S° E.
28.00 Canon, 300 lks. wide, bears N W.
75.00 Canon, 250 lks. wide, bears N W.
80.00 Offset from tangent to Parallel to 90th mile, temporary corner.
Surface broken, covered with 2nd rate Pine and spruce timber, and an undergrowth of Oak and Locust brush.
Soil 3d rate.
Aug 22nd. Measuring chain compared with standard and found correct.

West on 91st Mile

Variation 13° 50' East.
14.00 Canon, 200 lks. wide, bears N W.
40.00 Canon, 300 lks. wide, bears North.

Chains

80.00 Offset from tangent to Parallel to 91st mile temporary corner.
Surface mountainous, covered with 2nd rate Pine timber and a thick growth of Oak and locust brush.
Soil 2nd rate.

West on 92nd Mile

[fol. 416] Variation 13° 50′ East.
3.00 Canon, 3 chs. wide, bears N. W.
49.00 Prairie valley, bears N. N. W.
51.40 Creek, 10 lks. wide, clear water, rapid current, and stony bottom, course North.
52.50 Leave valley, bears N. N. W.
69.60 Enter valley, bears N. N. W.
69.80 Creek, 15 lks. wide, banks 4 feet high, clear water, 1 in. deep, swift current, stony bottom, course North.
78.60 Wagon road, from Cimaron or Maxwells mines to Trinidad, Colorado.
80.00 Offset from tangent to Parallel to 92nd mile, temporary corner.
Surface mountainous, covered with Locust Oak and various kinds of brush.
Soil 2nd rate.
Different veins of bituminous coal crops out in this section from side hills, etc.

West on 93d Mile

Variation 13° 51′ East.
5.50 Leave valley, bears E. N. E. and S. W.
25.00 Canon, 100 lks. wide, bears S. W.
40.00 Enter 2nd rate Pine timber, bears North.
80.00 Offset from tangent to Parallel, to 93d mile, temporary corner.
Surface mountainous, covered with 2nd rate Pine and spruce timber, and undergrowth of Oak and Locust brush.
Soil 2nd rate.

West on 94th Mile

Variation 13° 52′ East.
40.00 Canon 100 lks. wide, bears S. E.
80.00 Offset from tangent to Parallel to 94th mile temporary corner.
Surface mountainous, covered with 2nd rate Pine and spruce timber and an undergrowth of Oak and Locust brush. Soil 2nd rate.

Chains

West on 95th Mile

Variation 13° 52′ East.
27.50 Canon, 50 lks. wide, bears S. S. E.
72.50 Canon, 3 chs. wide, bears South.
80.00 Offset from tangent to Parallel to 95th mile, temporary
[fol. 417] corner.
Surface mountainous, covered with 2nd rate Pine and spruce timber.
Soil 2nd rate.
Aug. 23d. Measuring chain compared with standard and found correct.

West on 96th Mile

Variation 13° 53′ East.
14.50 Canon, 4 chs. wide, bears S. S. E.
80.50 Offset from tangent to Parallel, to 96th mile, temporary corner.
Surface mountainous, covered with 2nd rate Pine and spruce timber and can undergrowth of Oak, Locust and various other kinds of brush.
Soil 2nd rate.

West on 97th Mile

Variation 13° 54′ East.
4.00 Canon, 40 lks. wide, bears South.
Note: A bituminous coal bed, 25 lks. South about 4 feet thick.
5.00 Leave timber and thick brush, bears E. S. E.
24.50 Canon, 300 lks. wide, bears S. E.
72.00 Enter 2nd rate Pine timber, bears S. S. W.
80.00 Offset from tangent to Parallel to 97th mile, temporary corner.
Surface broken, covered with thick growth of Oak, Locust and various other kinds of brush. Last 8 chs. 2nd rate Pine timber.
Soil 3d rate.

West on 98th Mile

Variation 13° 54′ East.
16.00 Canon, 2 chs. wide, bears S. E.
62.00 Indian trail, bears S. W.
73.50 Canon, 75 lks. wide, bears N. W.
80.00 Offset from tangent to Parallel to 98th mile, temporary corner.

Chains

Surface broken, covered with 2nd rate Pine and Spruce timber and an undergrowth of Oak and Locust-brush.
Soil 3d rate.

[fol. 418] West on 99th Mile.

Variation 13° 54' East.
17.50 Ravine, 100 lks. wide, bears N. N. W.
22.50 Leave 2nd rate timber and enter Oak and Aspen brush, bears N. E.
51.00 Canon, 200 lks. wide, bears N. N. E.
79.00 Enter 2nd rate Pine timber, bears S. E.
80.00 Offset from tangent to Parallel, to 99th mile, temporary corner.
Surface mountainous, about 2/3 of the mile has been burnt over, and covered with fallen timber, grown up to Aspen and Oak brush.
Soil 2nd rate.

West on 100th Mile.

Variation 13° 55' East.
8.00 Canon, 1 ch. wide, bears North.
30.00 Canon, 2 chs. wide, bears N. E.
50.00 Top of mountain, bears S. E.
80.00 Offset from tangent to Parallel, to 100th mile, temporary corner.
Surface broken and mountainous, covered with 2nd rate Pine, Fir and Spruce timber, and an undergrowth of Oak, Locust and other kinds of brush.
Soil 3d rate.
Aug. 24th. Measuring chain compared with standard and found correct.

West on 101st Mile.

Variation 13° 55' East.
12.00 Canon, 200 lks. wide, bears N. N. W.
31.00 Canon, 300 lks. wide, bears N. N. E.
80.00 Offset from tangent to Parallel, to 101st mile, temporary corner.
Surface mountainous, covered with 2nd rate Pine, Fir and Spruce timber and an undergrowth of Oak and Locust brush.
Soil 3d rate.

Chains

West on 102nd Mile

Variation 13° 55' East.
23.75 Canon, 2 chs. wide, 800 feet deep, bears S. S. W.
80.00 Offset from tangent to Parallel to 102nd mile temporary corner.
Surface mountainous, covered with 2nd rate Pine, Fir and Spruce timber and an undergrowth of Oak and Locust brush, stony on side of bluffs
[fol. 419] Soil 3d rate.

West on 103d Mile.

Variation 13° 55' East.
5.00 Enter Aspen timber and brush, bears North.
9.50 Canon, 100 lks. wide, bears North.
36.00 Canon, 150 lks. wide, bears North.
46.00 Canon, bears E. N. E.
61.00 Leave canon, bears E. N. E.
73.00 Enter canon, bears E. N. E.
79.00 Leave canon, bears E. N. E.
80.00 Offset from tangent to Parallel, to 103d mile temporary corner.
Surface mountainous, covered with Aspen brush. It was covered with Aspen timbers, but fire, only a shore time since destroyed it, and Aspen brush has grown up in its stead.
Soil 2nd rate.

West on 104th Mile.

Variation 13° 55' East.
38.00 Leave side of bluff, bears E. N. E.
80.00 Offset from tangent to Parallel to 104th mile temporary corner.
Surface, 1st half mountainous, covered with brush, 2nd half a high plateau covered with 2nd rate yellow pitch Pine and fir timber
Soil 3d rate
Aug. 25th. Measuring chain compared with standard, and found correct.

West on 105th Mile

Variation 13° 55' East.
19.00 Top of bluff, bears N. N. W.
25.00 Canon, 200 lks. wide, bears N. N. W.

Chains

35.00 Enter fallen Aspen timber, grown up to thick brush, bears North.
46.50 Enter 2nd rate Pine and Fir timber, bears North.
80.00 Offset from tangent to Parallel, to 105th mile, temporary corner.
Surface mountainous, covered mostly with 2nd rate Pine and Fir timber and an undergrowth of Oak and Aspen brush.
Soil 3d rate.

[fol. 420] West on 106th Mile

Variation 13° 55' East.
15.50 Canon, 200 lks. wide, bears N. N. E.
50.50 Canon, 300 lks. wide, bears S. E.
80.50 Offset from tangent to Parallel, to 106th mile, temporary corner.
Surface broken, covered with 2nd rate Pine Fir and Aspen timber.
Soil 2nd rate.

West on 107th Mile

Variation 13° 55' East.
80.50 Offset from tangent to Parallel, to 107th mile, temporary corner.
Surface broken.
Soil 1st rate.

West on 108th Mile

Variation 13° 55' East.
80.00 Offset from tangent to Parallel, to 108th mile, temporary corner.
Surface rolling, covered with 2nd rate Pine and Aspen timber and undergrowth of Oak brush.
Soil 2nd rate.

West on 109th Mile

Variation 13° 55' East.
80.00 Offset from tangent to Parallel, to 109th mile, temporary corner.
Surface rolling, covered with 2nd rate pitch Pine and Aspen timber.

Chains

Soil 2nd rate.
Aug. 26th. Measuring chain compared with standard, and found correct.

West on 110th Mile

Variation 13° 55′ East
2.50 Canon, bears S. S. W.
37.00 Prairie Valley covered with grass, bears S. S. E.
74.00 Leave 2nd rate Pine timber, bears S. S. W.
77.00 Enter low bottom, bears S. S. E.
77.90 Creek, 3 lks. wide, low banks, clear water, swift current, sandy bottom, course S. S. E.
78.50 Leave low bottom, bears S. S. E.
80.00 Offset from tangent to Parallel, to 110th mile, temporary
[fol. 421] corner.
Surface broken, covered with 2nd rate Pine and Aspen timber.
Soil 2nd rate.

West on 111th Mile

Variation 13° 55′ East.
1.50 Enter 2nd rate Pine timber, bears S. E.
80.00 Offset from tangent to Parallel, to 111th mile, temporary corner.
Surface rolling, covered with 2nd rate Pine and Aspen timber.
Soil 1st rate.

West on 112th Mile

Variation 13° 50′ East.
70.60 Canon, 500 feet deep, 250 lks. wide, bears S. S. W.
80.00 Offset from tangent to Parallel, to 112th mile temporary corner.
Surface broken
Soil 2nd rate

West on 113th Mile

Variation 13° 55′ East.
12.00 Top of mountain ridge, bears S. S. W.
34.20 Canon, 200 lks. wide, bears South
77.70 Creek, 6 lks. wide, clear water, gentle current, rocky bottom course S. S. E.

Chains

80.00 Offset from tangent to Parallel, to 113th mile, temporary corner.
Surface mountainous and stony, covered with 2nd rate Pine and Aspen timber.
Soil 3d.

West on 114th Mile

Variation 13° 55′ East.
9.50 Canon, 100 lks. wide, bears S. S. W.
47.00 Creek, 4 lks. wide, clear water, gentle current, stony bottom, course North.
72.50 Canon, 100 lks. wide, bears South.
80.00 Offset from tangent to Parallel, to 114th mile, temporary corner.
Surface mountainous and stony, covered with 2nd rate
[fol. 422] Pine and Fir timber.
Soil 3d rate.

West on 115th Mile

Variation 13° 55′ East.
19.50 Top of mountain spur, bears North.
69.00 Leave 2nd rate Pine timber and enter Prairie valley, bears North.
77.00 Creek 6 lks. wide, clear water, gentle currenty, stony bottom, course S. S. W.
80.00 Offset from tangent 9.50 chs. to Parallel to 115th mile temporary corner.
Surface broken.
Soil 3d rate.

Astronomical monument No. 4 is 8.12 chs. East and 4.50 chs. North of 115th mile corner. I therefore make a correction of 12.5 lks. per mile.
Moved temporary corner 4.50 chs. North and set true corner.
Marked stone 7x5x4 –115 M.– and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 22x16x10, projecting 8 in. above mound, marked on the North, South, West and East side 4C. N. M. 1868. 115 M. respectfully
No natural objects near.

Chains

East on 114th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 4.37.2 chs. North, and set true corner.
Marked stone 5x5x1 -1114 M.- and deposited in 3½ feet in earth. Built conical mound of stone and earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x20x16, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -114 M.- respectively.
No natural objects near.

East on 113th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 4.24.5 chs. North and set true corner.
[fol. 423] Marked stone 8x6x3 -113M- and deposited it 3½ feet in earth. Built conical mound of stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -113 M.- respectively.
From which point
A Pine tree, 18 in. dia. bears S. 15 W., 56 lks. dist.
A pine tree, 18 in. dia. bears N. 7 E., 134 lks. dist.

East on 112th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 4.11.8 chs. North and set true corner.
Marked stone 9x9x4 -112 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 38x14x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -112 M.- respectively
From which point
A pitch pine tree, 10 in. dia. bears S. 17 W., 57 lks. dist.
A pitch Pine tree, 14 in. dia. bears N. 20 E., 42 lks. dist.

Chains

East on 111th Mile

Variation 13° 50′ East.

80.00 Moved temporary corner 3.99.1 chs. North and set true corner. Marked stone 9x6x3 -111 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x14x3, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -111 M.- respectively.
From which point
A pine tree, 30 in. dia., bears S. 4 W., 25 lks., dist.
A pine tree, 30 in. dia. bears N. 3 E., 138 lks. dist.

East on 110th Mile

Variation 13° 50′ East.

80.00 Moved temporary corner 3.86.4 chs. North and set true corner.
Marked stone 9x6x3 -110 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over
[fol. 424] same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 34x12x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -110 M.- respectively.
From which point
A pitch Pine tree, 20 in. dia., bears S. 6 W., 118 lks. dist.
A pitch Pine tree, 15 in. dia., bears N. 62 W., 213 lks. dist.

East on 109th Mile

Variation 13° 50′ East.

80.00 Moved temporary corner 3.73.6 chs. North and set true corner.
Marked stone 9x6x3 -109 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x8x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -109 M.- respectively.
From which point
A double Pine tree, 24 in. dia., bears North 130 lks. dist.
A pine tree 20 in. dia., bears S. 1¼ E., 61 lks. dist.

Chains

East on 108th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 3.60.9 chs. North and set true corner.
Marked stone 12x5x4 -108 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x 9x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -108 M.- respectively.
From which point
A pitch pine tree, 10 in. dia., bears N. 29 W., 8 lks. dist.
A pitch pine tree, 10 in. dia., bears S. 29 E., 6 lks. dist.

East on 107th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 3.48.2 chs. North and set true corner.
Marked sand stone 7x6x3 -107 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound,
[fol. 425] 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -107 M.- respectively. From which point
A double Pine tree, 24 in. dia., bears North, 130 lks. dist.
A pine tree, 20 in. dia., bears S. 17 E., 61 lks. dist.

East on 106th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 3.35.5 chs. North and set true corner.
Marked sand stone 6x6x3 -106 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 16x12x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -106 M.- respectively.
From which point
A pine tree, 16 in. dia., bears S. 10 W., 115 lks. dist.
A pine tree, 14 in. dia., bears N. 12 E., 104 lks. dist.

Chains

East on 105th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 3.22.8 chs. North and set true corner.

Marked sand stone 13x5x3 -105 M.- and deposited it 31½ feet in earth. Built conical mound of stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x9x9, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -105 M.- respectively.

From which point

A pine tree, 16 in. dia., bears N. 10 E., 69 lks. dist.

A pine tree, 18 in. dia., bears N. 14 E., 56 lks. dist.

East on 104th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 3.40.0 chs. North and set true corner.

Marked stone 10x10x3 -104 M.- and deposited it 31½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from [61. 426] base of mound, 2 feet square and 18 in. deep. Set sand stone 30x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -104 M.- respectively.

From which point

A pine tree, 14 in. dia., bears N. 45 E., 60 lks. dist.

A Fir tree, 13 in. dia., bears S. 35 W., 11 lks. dist.

East on 103d Mile

Variation 13° 50' East.

80.00 Moved temporary corner 2.97.3 chs. North and set true corner.

Marked sand stone 8x6x3 -103 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x12x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -103 M.- respectively.

From which point

A Pine tree, 20 in. dia., bears N. 10 E., 155 lks. dist.

No other trees near.

Chains

East on 102nd Mile

Variation 13° 50' East.

80.00 Moved temporary corner 2.84.6 chs: North and set true corner.
Marked sand stone 10x8x3 -102 M- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x13x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -102 M- respectively.
From which point
A Norway Pine tree, 50 in. dia., bears S. 49 W., 69 lks. dist.
A Pine tree, 28 in. dia., bears S. 49 W., 69 lks. dist.

East on 101st Mile

Variation 13° 50' East.

80.00 Moved temporary corner 2.71.9 chs. North, and set true corner.
Marked stone 12x10x4 -101 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits, 10 lks. East and West, from base of mound,
[fol. 127] 2 feet square and 18 in. deep. Set sand stone, 20x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -101 M.- respectively.
From which point
A Pine tree, 24 in. dia., bears N. 13 W., 57 lks. dist.
A Pine tree, 18 in. dia., bears S. 45 E., 60 lks. dist.

East on 100th Mile

Variation 13° 50' East.

80.00 Moved temporary corner 2.59.2 chs. North and set true corner.
Marked stone 12x20x4 -100M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x10x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -100 M.- respectively.
From which point
A Pine tree, 14 in. dia., bears S. 4 W., 14 lks. dist.
A pine tree, 18 in. dia., bears N. 8 W., 109 lks. dist.

Chains

East on 99th Mile

Variation 13° 50' East

80.00 Moved temporary corner, 2.16.4 chs. North and set true corner.
Marked stone 6x6x2 .99 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x13x6, projecting 8 in. above mound, marked on the North, South, West and East sides .C.-.N. M.-.1868-.99 M.- respectively
From which point a
Pine tree, 22 in. dia., bears S. 19 W., 28 lks. dist.
Pine tree, 22 in. dia., bears N. 9 E., 26 lks. dist.

East on 98th Mile

Variation 13° 49' East.

80.00 Moved temporary corner, 2.33.7 chs. North and set true corner.
Marked stone 10x6x3 .98 M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x5, projecting 8 in. above mound, marked on the North, South,
[fol. 428] West and East sides .C.-.N. M.-.1868-.98 M.- respectively.
From which point
A Pine tree, 13 in. dia., bears N. 18 E., 96 lks. dist.
A Pine tree, 12 in. dia., bears S. 13 W., 96 lks. dist.

East on 97th Mile

Variation 13° 49' East.

80.00 Moved temporary corner 2.21.0 chs. North and set true corner.
Marked sand stone 6x5x4 .97 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x7x7, projecting 8 in. above mound, marked on the North, South, West and East sides .C.-.N. M.-.1868-.97 M.- respectively.
From which point
A Pine tree, 16 in. dia., bears S. 27 W., 37 lks. dist.
A Pine tree, 13 in. dia., bears N. 27 E., 93 lks. dist.

Chains

East on 96th Mile

Variation 13° 48' East.

80.00 Moved temporary corner 2.08.3 Chs. North and Set true corner.
Marked sand stone 6x6x3 -96 M.- and deposited it 3½ feet in earth. Built conical mound of stone 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 22x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -96 M.- respectively.
From which point
A Pine tree, 24 in. dia., bears S. 40 W., 38 lks. dist.
A Pine tree, 18 in. dia., bears N. 65 W., 146 lks. dist.

East on 95th Mile

Variation 13° 49' East.

80.00 Moved temporary corner 1.95.6. Chs. North and set true corner.
Marked stone 6x5x3 -95 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x10x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1808- -95 M.- respectively.
From which point
[fol. 429] A Pine tree, 18 in. dia., bears S. 13 W., 111 lks. Dist.
A Pine tree, 18 in. dia., bears N. 5 W., 36 lks. dist.

East on 94th Mile

Variation 13° 49' East.

80.00 Moved temporary corner 1.82.8 Chs. North and set true corner.
Marked sand stone 7x6x3 -94 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from bas. of mound, 2 feet square and 18 in. deep. Set sand stone 24x13x6, projecting 8 inf. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -94 M.- respectively.
From which point
A Pine tree, 14 in. dia., bears S. 12 W., 112 lks. dist.
A Pine tree, 24 in. dia., bears N. 12 E., 138 lks. dist.

East on 93d Mile

Variation 13° 46' East.

80.00 Moved temporary corner 1.70.1 Chs. North and set true corner.

Chains

Marked stone 6x6x3 -93 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x14x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -93 M.- respectively
From which point
A Pine tree, 14 in. dia., bears N. 54 W., 37 lks. dist.
A Pine tree, 20 in. dia., bears S. 35 W., 63 lks. dist.

East on 92nd Mile

Variation 13° 46' East.

80.00 Moved temporary corner 1.57.4 Chs. North and set true corner.
Marked stone 8x6x3, -92 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 40x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -92 M.- respectively.
No natural objects near.

[fol. 430]

East on 91st Mile

Variation 13° 45' East.

80.00 Moved temporary corner 1.41.7 chs. North and set true corner on side hill
Marked stone 6x5x3 -91 M.- and deposited it one foot in earth. Set sand stone, 24x12x4 over same, marked on the North, South, West and East sides -C.- -N. M.- -1868- -91 M.-
No mound, no pits.
From which point
A Pine tree, 20 in. dia., bears S. 18 W., 70 lks. dist.
A Pine tree, 18 in. dia., bears N. 37 E., 50 lks. dist.

East on 90th Mile

Variation 13° 45' East.

80.00 Moved temporary corner 1.32.0 chs. North and set true corner.
Marked stone 10x8x3 -90 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound,

Chains

2 feet sqr., and 18 in. deep. Set sand stone 36x14x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -90 M.- respectively. From which point
A Pine tree, 20 in. dia., bears S. 48 W. 70 lks. dist.
A Pine tree, 18 in. dia., bears N. 37 E. 50 lks. dist.

East on 89th Mile

Variation 13° 45' East.

80.00 Moved temporary corner 1.19.2 chs. North and set true corner.
Marked stone 8x6x[illegible] -89 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28x10x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -89 M.- respectively. No natural objects near.

East on 88th Mile

Variation 13° 45' East.

80.00 Moved temporary corner 1.06.5 chs. North and set true corner, on side of bluff.
Marked stone 5x5x4 -88 M.- and deposited it, 3½ feet in earth. Built conical mound of stone, 4 feet high over same. Dug pits 10 lks. East and West from base of mound;
[fol. 431] 2 feet square and 18 in. deep. Set sand stone 30x8x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -88 M.- respectively. No natural objects near.

East on 87th Mile

Variation 13° 44' East.

80.00 Move temporary corner 93.8 lks. North and set true corner. Marked sand stone 13x5x3 -87 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x16x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -87 M.- respectively.

Chains

From which point
A Pine tree, 8 in. dia. bears S. 1° W. 12 lks. dist.
A Pine tree, 24 in. dia. bears N. 21 E., 191 lks. dist.

East on 86th Mile

Variation 13° 41′ East.

80.00 Moved temporary corner 84.1 lks. North and set true corner. Marked stone 6x6x4 -86 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 22x12x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -86 M.- respectively.
From which point
A yellow Pine tree, 16 in. dia., bears N. 58 E., 72 lks. dist.
A yellow Pine tree, 16 in. dia., bears S. 58 W., 18 lks. dist.

East on 85th Mile

Variation 13° 38′ East.

80.00 Moved temporary corner 68.4 lks. North, and set true corner.
Marked sand stone 12x6x4 -85 M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set sand stone 20x10x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -85 M.- respectively.

[fol. 432] From which point
A Pine tree, 24 in. dia. bears N. 22 E., 140 lks. dist.
A Pine tree, 14 in. dia. bears S. 26 W., 60 lks. dist.

East on 84th Mile

Variation 13° 38′ East.

80.00 Moved temporary corner 55.6 lks. North and set true corner, on side hill, facing the North.
Marked sand stone 8x6x2 -84 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 36x12x4, projecting 8 in. above mound, marked on the

Chains

North, South, West and East sides -C.- -N. M.- -1868- -84 M.- respectively.
From which point
A Pine tree, 20 in. dia., bears N. 19 E. 10 lks. dist.
A Pine tree, 14 in. dia., bears S. 13 E., 32 lks. dist.

East on 83d Mile

Variation 13° 37' East.

80.00 Moved temporary corner 42.9 lks. North and set true corner.
Marked stone 10x6x3 -83 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 18x8x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -83 M.- respectively.
From which
A Pine tree, 12 in. dia., bears N. 12 W. 64 lks. dist.
A Pine tree, 14 in. dia. bears S. 12½ W. 17 lks. dist.

East on 82nd Mile

Variation 13° 33' East.

80.00 Moved temporary corner 30.2 lks. North and set true corner.
Marked stone 12x10x3 -82 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 22x8x4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -82 M.- respectively.
From which
A yellow Pine tree, 12 in. dia. bears N. 5 E., 95 lks. dist.
A yellow Pine tree, 18 in. dia. bears S. 13 W., 190 lks. dist.

[fol. 433]

East on 81st Mile

Variation 13° 35' East.

80.00 Moved temporary corner 17.5 lks. North and set true corner.
Marked stone 6x3x2 -81 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x6, projecting 8 in. above mound, marked on the North, South,

Chains

West and East sides C—N M—1868—84 M—respectively
From which point
A white Pine tree, 18 in. dia. bears S. 10 W. 27 lks. dist.
A white Pine tree, 18 in. dia. bears N. 14 E. 96 lks. dist.

East on 80th Mile

Variation 13° 35′ East.

80.00 Moved temporary corner 4.8 lks. North and set true corner. Marked stone 6x5x4—80 M—and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x12x8, projecting 8 in. above mound, marked on the North, South, West and East sides C—N M—1868—80 M—*respectfully*. No natural objects near.

Observations for azimuth at astronomical monument No.

4 on d Ursae Minoris, Dec. 86° 36′ 42″ 4, RA 18h 14′

51.5″, and 51 Cephei Dec. 87° 14′ 05″ 6, RA 6h 37′

39, Aug. 27, 1868. Chronometer fast at mean noon, on Solar time, 5h 48m 20.8s with a loosing rate of 22s per day.

	h	m	s
Chronometer time of observation of Ursae Minoris, upper transit	1	36	45
Chro—r, time of observation of 51 Cephei	1	59	17
Chronometer interval		22	32
Chronometer rate			0.3
Reduction to Sidereal time			03.7
Difference in time of upper and lower transit		22	36
[fol. 434] Difference in lower and upper Culminations as shown in Nautical Almanac		22	47.5
Difference of observed time, minus difference of right assension			11.5

Δ 11′.5=1725 Log	2.236789	Magnetic Va.
Cos d 86° 36′ 42″=	8.771681	13° 50′ East
Cos d 87° 14′ 05″=	8.683359	Error of azi-
Sec. 37°=	0.097651	muth 5.75
Cosec 6° 09′ 13″=	0.969827	—0.759307

Chains

West on 116th Mile

Variation 13° 50' East.
8.00 Indian trail, bears S. W.
50.00 Valley, bears South.
63.50 Creek, 35 lks. wide, clear water, 8 in. deep, swift current, stony bottom, course S. S. E.
80.00 Offset from tangent to Parallel, to 116th mile corner, a large sand stone boulder, 5x4x2½ feet above surface, marked on the North, South, West and East sides -C.- -N. M.- -1868- -116 M.- respectively.
From which point
A large sand stone boulder 15x10x4 feet bears N. 60 E., 42 lks. dist.
Surface broken.
Soil in valley 1st rate.
Balance 2nd rate.

West on 117th Mile

Variation 13° 50' East.
20.00 Top of mountain ridge, bears S. S. W.
42.00 Snowy Peak, bears N. 32 W.
75.75 Creek 10 lks. wide, clear water, swift current, stony bottom, course S. W.
77.10 Creek, 2 lks. wide, swift current, clear water, gravelly bottom, course S. S. W.
80.00 Offset from tangent to Parallel to 117th mile corner.
Marked sand stone 8x6x4 -117 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26x10x8, projecting 8 in. above mound, marked on
[fol. 435] the North, South, West and East sides -C.- -N. M.- -1868- -117 M.- respectively.
From which point
A pine tree, 18 in. dia. bears N. 10 E., 93 lks. dist.
A Pine tree, 20 ins. dia., bears S. 11 E., 173 lks. dist.
Surface mountainous and stony, covered with 3d rate Pine timber and an undergrowth of Oak and Aspen brush.
Soil 3d rate

West on 118th Mile

Variation 12° to 15° East.
18.25 Creek, 40 lks. wide, clear water, about 8 in. deep, rapid current, gravelly and stony bottom, course E. S. E.

Chains

32.50 Canon, 2 chs. wide, bears N. E. A creek about 6 feet North of line.

41.00 Creek in deep canon, 5 lks. wide, rapid current, course E. N. E.

80.00 Offset from tangent to Parallel, to 118th mile corner.
Marked stone 11x6x3 and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x12x7 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -118 M.- respectively.
No natural objects near.
General surface mountainous, covered with 2nd rate Pine timber and brush.
Soil 1st and 2nd.
Aug. 28th. Measuring chain compared with standard and found correct.

West on 119th Mile

Variation 13° to 15° 30′ East.

15.00 Top of ridge, bears S. 10 E.

51.00 Enter marsh, bears S. W.

66.00 Creek, 3 lks. wide, clear water, rapid current, course N. N. W.

80.00 Offset from tangent to Parallel, to 119th mile corner in thick fallen timber.
Deposited charred block 6x6x4—3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, three feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -119 M.- respectively.
[fol. 436]
No natural objects near.
Surface broken, covered with thick fallen timber and an undergrowth of Aspen, Fir and Pine brush.
Soil 3d rate.

West on 120th Mile

Variation 13° 55′ East.

40.00 Top of ridge, bears S. S. W.

56.00 Leave fallen timber and enter Prairie, bears S. S. E.

79.50 Enter young growth of Pine and Fir timber, bears S. W.

Chains

80.00 Offset from tangent to Parallel to 120th mile corner, in small grove. Marked stone 8x6x4 -120 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x14x, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -120 M.- respectively.
From which point
A fir tree, 18 in. dia., bears S. 2° E., 15 lks. dist.
A fir tree, 8 in. dia., bears N. 8 E., 68 lks. dist.
Surface broken, 1st 56 chs. covered with fallen timber and small aspen and fir timber, balance open prairie.
Soil 2nd rate.

West on 121st Mile

Variation 13° 50′ East.
1.00 Leave small grove of timber, bears S. E., and enter prairie valley.
80.00 Offset from tangent to Parallel to 121st mile corner. Marked stone 10x4x4 -121 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x17x10, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -121 M.- respectively.
No natural objects near.
Surface gently rolling prairie.
Soil 2nd rate.

West on 122nd Mile

Variation 13° 55′ East.
25.00 Enter slough, covered with willow brush bears South.
33.50 Leave slough, bears S. W.
80.00 Offset from tangent to Parallel, to 122nd mile corner.
[fol. 437] Marked stone 10x7x3 -122 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set iron stone 36x15x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -122 M.- respectively.
No natural objects near.
Surface Prairie, gradually descending to the South and West.
Soil 1st rate.

Chains

West on 123d Mile

Variation 13° 50′ East.

6.50 Indian trail, bears N. W.

11.80 Creek, 8 lks. wide, clear water, rapid current, stony bottom, course S. E.

20.00 Enter scattering 2nd rate Pine and Aspen timber, bears North and South.

80.00 Offset from tangent to Parallel, to 123d mile corner.
Deposited charred block, 10x6x4, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -123 M.- respectively.
No natural objects near.
Surface mountainous, covered with Aspen and Pine brush.
Soil 2nd rate.
Aug. 29th. Measuring chain compared with standard and found correct.

West on 124th Mile

Variation 13° 50′ East.

80.00 Place for 124th mile corner on side of mountain.
Impossible to establish it.
Surface mountainous, covered with stone.
Soil 3d rate.

West on 125th Mile

[fol. 438] Variation 13° 50′ East.

4.00 Foot of snowy mountain ridge, bears South.

52.00 Summit of snowy mountain ridge, bears S. S. E.

55.00 Built conical witness mound of stone 4 feet high, set sand stone 20x10x8, marked on the North -C.- South -N. M.- West -1868-.

80.00 Offset from tangent to Parallel to 125th mile corner. Deposited stone 10x6x4 -125 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set quartz stone 23x12x8, projecting 8 in° above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -125 M.- respectively.
No natural objects near.

Chains

Surface mountainous and stony, with some prairie land
Soil 3d rate.

West on 126th Mile

Variation 13° 50′ East.

10.00 Enter 2nd rate pinon, pine timber, bears N. and S.

23.50 Creek, 10 lks. wide, clear water, rapid current, stony bottom, course S. S. W.

30.00 Leave timber, bears W. N. W.

80.00 Offset from tangent to Parallel, to 126th mile corner.
Marked stone 10x6x3 -126 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set quartz stone 20x12x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -126 M.- *respectfully*.
No natural objects near.
Surface broken, covered with stone and sand quartz.
Soil 3d rate.

West on 127th Mile

Variation 13° 50′ East.

64.00 Creek, in canon, 1,000 feet deep.

80.00 Place for 127th mile corner, on side of cliff, impossible to establish corner.
Surface mountainous and stony, mostly sand stone quartz.
Soil 3d rate.
Aug. 30th. Measuring chain compared with standard and found correct.

[fol. 439] West on 128th Mile

Variation 13° 50′ East.

80.00 Offset from tangent to Parallel, to 128th mile corner.
Marked stone 10x6x3 -128 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x12x8 projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -128 M.- respectively.
No natural objects near.
Surface mountainous and stony, covered with aspen and Pine brush.
Soil 3d rate.

Chains

West on 129th Mile

Variation 13° 50′ East.
50.00 Foot of mountain, ridge bears N. W.
80.00 Offset from tangent to Parallel, to 129th mile corner. Marked stone, 0x6x5 -129 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x8x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -129 M.- respectively.
From which point
A Pine tree, 24 in. dia. bears S. 72 E., 51 lks. dist.
A Pine tree, 24 in. dia. bears N. 60 W., 35 lks. dist.
Surface mountainous and stony
Soil 3d rate.

West on 130th Mile

Variation 13° 50′ East.
45.00 Leave timber, and enter sage brush, Prairie bears North.
79.50 Enter canon, bears N. W.
80.00 Offset from tangent to Parallel, to 130th mile corner. Marked stone 10x6x4, -130 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone, 30x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -130 M.- respectively.
[fol. 440] From which
A Pine tree, 30 in. dia. bears S. 35 E., 184 lks. dist.
No other tree near.
Surface rolling.
Soil 3d rate.

West on 131st Mile

Variation 13° 50′ East.
1.50 Leave canon, bears N. W.
30.00 Enter pinon Pine and volcanic stone region.
51.40 Leave same and enter valley, bears N. and S.
73.00 Creek, 4 lks. wide, stony bottom, course N. N. W.

Chains

80.00 Offset from tangent to Parallel, to 131st mile corner, on bank of creek, 4 lks. wide, clear water, gentle current, sandy bottom, course N. N. W. Marked stone 6x4x3 -131 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set granite stone 20x10x8 projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -131 M.- respectively.
No natural objects near.
Surface rolling.
Soil 3d rate.

West on 132nd Mile

Variation 13° 50′ East.

5.00 Creek, 10 lks. wide, low banks, clear water, swift current, stony bottom, course North.
An old cabin about 3 chs. North.

80.00 Offset from tangent to Parallel to 132nd mile corner.
Marked volcanic stone 12x6x4 -132 M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set pitch Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C. -N. M.- -1868- -132 M.- respectively.
No natural objects near.
Surface, gradual descent to West and N. W.
Soil 3d rate, covered with gravel, washed from the mountains and sage brush.

[fol. 441] West on 133d Mile

Variation 11° 50′ East.

67.00 Top of volcanic hill, covered with stone.
Variation 18° East.

80.00 Offset from tangent to Parallel, to 133d mile corner.
Marked stone 12 x 6 x 4 -133 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24 x 8 x 7, projecting 8 ins. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -133 M.- respectively.
From which point a

Chains

Snow peak, bears S. 15° W.
Conical Peak, in valley, bears S. 72 W
Conical Peak, in mountains, bears N. 67 E.
Surface gently rolling.
Soil 2nd rate.
Aug. 31st. Measuring chain compared with standard and found correct.

West on 134th Mile

Variation (at corner) 12° East.
Variation 11 chs. West 13° East.
20 chs. West 13° 50′ East.

77.50 Road leading to deserted cabins near base of mountains, bears S. W.

80.00 Offset from tangent to Parallel, to 134th mile corner. Marked stone 10 x 6 x 3 -134 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -134 M- respectively.
No natural objects near.
Surface gently rolling, covered with sage brush.
Soil 2nd rate.

West on 135th Mile

Variation 13° 50′ East.

41.00 Road bears S. W.

80.00 Offset from tangent to Parallel to 135th mile corner. Marked stone 6 x 4 x 3 -135 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over
(fol. 442) same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -135 M- respectively.
No natural objects near.
Surface gently rolling.
Soil 3d rate.

West on 136th Mile

Variation 13° 50′ East.

9.00 Road from San Francisco Col. to La Costilla, N. M. bears W. S. W.

Chains

30.00 Enter pinion Pine timber, bears S. S. W.
38.00 Top of ridge, covered with volcanic stone.
45.00 Leave scattering pinon Pine timber, bears S. S. W.
52.00 Road from San Francisco, Cal. to San Costiall, N. M. bears W. N. W.
52.60 Enter scattering pinion Pine timber, bears W. N. W.
80.00 Offset from tangent to Parallel to 136th mile corner. Marked volcanic stone 8 x 6 x 4 -136 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30 x 16 x 12, projecting 8 in. above mound, marked on the North, South, West and East Sides -C.- -N. M.- -1868- -136M- respectively.
No natural objects near.
Surface broken. The last 50 chs. mostly covered with pinon, Pine timber and volcanic stone.
Soil 3d rate.

West on 137th Mile

Variation 13° 50' East.
12.00 Leave scattering pinon Pine timber and enter valley, bear North.
47.00 American flag in front of Meyer & Co.'s store and P. O. in centre of village of La Costilla, N. M., bears S. 52 W.
52.50 Canal for irrigation, course N. W.
63.25 Canal for irrigation, course N. W.
80.00 Offset from tangent to Parallel, to 137th mile corner. Marked volcanic stone 7 x 6 x 3 -137 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East & West from base
[fol. 443] of mound, 2 feet square and 18 in. deep. Set volcanic stone 24 x 8 x 8, projecting 8 in. above mound, marked on the North, South West and East sides -C.- -N. M.- -1868- -137 M.- respectively.
No natural objects near.
Surface level valley, covered with sage brush.
Soil 2nd rate.

West on 138th Mile

Variation 13° 50' East.
18.00 Canal for irrigation, course N. N. W.
47.50 Road from La Costilla, N. M. to Fort Garland, Col., bears North. Baldy mountain near Fort Garland bears N. 4 E. American flag in front Meyer & Co.'s store and P. O. in centre of Village of La Costilla, N. M. bears S. 2 W.

Chains

56.50 Canal for irrigation, course North.
58.70 Canal for irrigation, course North.
62.00 Rio Costilla, 75 lks. wide, clear water, rapid current, stony bottom, course N. 10 W.
63.75 Road, bears North.
74.50 Road from La Costilla to Conejos, Col., bears N. N. W.
80.00 Offset from tangent to Parallel to 138th mile corner.
Marked stone 10 x 6 x 4 -138 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26 x 18 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.-N. M.- -1868- -138 M.- respectively.
No natural objects near.
Surface level, covered with sage brush and various kinds of cactus.
Soil 3d rate.
Note: The village of La Costilla, N. M. at this point, is divided by the line, leaving nearly ¾ of it in N. M.

West on 139th Mile

Variation 13° 50′ East.
79.50 Road leading to base of Ute Mountain, bears W. S. W.
80.00 Offset from tangent to Parallel to 139th mile corner on N. W. side of road. Marked stone 10 x 6 x 4 -139th M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and
[fol. 144] West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30 x 14 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -139 M.- respectively.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate and gravelly.
Sept. 1st. Measuring chain compared with standard and found correct.

West on 140th Mile

Variation 13° 50′ East.
80.00 Offset from tangent to Parallel to 140th mile corner.
Marked stone 6 x 6 x 4 -140 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set volcanic stone 20 x 8 x 8 projecting 6 in. above mound, marked on the North, South,

Chains

West and East sides -C.- -N. M.- -1868- -140 M.- respectfully.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil gravelly, 3d rate.

West on 141st Mile

Variation 13° 50′ East.

80.00 Offset from tangent to Parallel, to 141st mile corner.
Marked stone 8 x 6 x 4 -141 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24 x 16 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -141 M.- respectively.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate, gravelly.

West on 142nd Mile

Variation 13° 50′ East.

80.00 Offset from tangent to Parallel to 142nd mile corner.
Marked stone 6 x 6 x 4 -142 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound,
[fol. 445] 2 feet square and 18 in. deep. Set volcanic stone 24 x 10 x 6 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -142 M.- respectively.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate and gravelly.

West on 143d Mile

Variation 13° 50′ East.

80.00 Offset from tangent to Parallel to 143 mile corner.
Marked stone 5x4x3 -143 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x14x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -143 M.- respectfully.

Chains

No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate, gravelly.

West on 144th Mile

Variation 13° 50' East.

80.00 Offset from tangent to Parallel to 144th mile corner.
Marked stone 6x4x3 -144 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound 2 feet square and 18 in. deep. Set volcanic stone 24x10x10 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -144 M.- respectfully.
No natural objects near.
Surface level, covered with sage brush and cactus.
Soil 3d rate, gravelly.

West on 145th Mile

Variation 13° 50' East.

80.00 Offset from tangent to Parallel to 145th mile corner.
Marked stone 6x5x3, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 ft. square and 18 in. deep. Set volcanic stone 26x13x7, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -145 M.- respectfully.
[fol 146] No natural objects near.
Surface level, covered with sun flowers and cactus.
Soil 2nd rate.

West on 146th Mile

Variation 13° 50' East.

80.00 Offset from tangent to Parallel to 146th mile corner.
Marked stone 6x4x3 -146 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -146 M.- respectfully.
From which point
Ute mountain, bears South.
Baldy mountain, near Fort Garland, bears N. 14½ E.

Chains

Two mountain Peaks, down valley connected by a ridge East, bears S. 41 W.
Mountain ridge, bears S. 64 W. about 20 miles dist.
Mountain Peak, bears S. 64 E.
Mountain Peak, bears S. 32½ E.
Surface level, covered with sage brush
Soil 3rd rate.

West on 147th Mile

Variation 13° 50′ East.

51.00 Bend in creek, 50 lks. wide, clear water, rapid current, gravelly bottom, course W. S. W. and W. N. W.

59.00 Rio Costilla, 100 lks. wide, low banks, clear water, rapid current, gravelly bottom, course S. S. W.

80.00 Offset from tangent to Parallel to 147th mile corner Marked stone 6x4x3 -147 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same.
Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x12x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.-N. M.- -1868- -147 M.- respectfully.
No natural objects near.
Surface nearly level.
Soil 3rd rate, gravelly.

West on 148th Mile

Variation 13° 45′ East.

70.15 [fol. 447] Offset from tangent to Parallel, S. 27.3 lks. North to Astronomical Monument No. 5, which is represented by a volcanic cobble stone mound, 8 feet at base, 4½ feet high, and 3½ feet at top. Set volcanic stone 36x12x12, marked on the North "Colorado" South "New Mexico" East "37 N. L." West "1868" on bank of Rio Grande.
Sept. 2nd. Measuring chain compared with standard and found correct.

Observations for Azimuth at Astronomical Monument No. 5, on d Ursae Minoris Dec. 86° 36′ 43″, R. A. 18.h 14.m 54.s, and 51 Cephei Dec. 87° 14′ 04″.1, R. A. 6.h 37.m 43.8s Sept. 5th, 1868. Chronometer fast at mean noon, on Solar time 5.h 49.m 34.s, with a loosing rate of 15s per day.

Chains

	d	h	m	s
Chronometer time of observation of Ursae Minoris, upper transit		10	03	60
Chro. time of observations of 51 Cephei		10	25	44
Chronometer interval			22	44
Chronometer rate				0 25
Reduction to Sidereal time				3 61
Difference in time of upper and lower transit			22	47 86
Difference in time of upper and lower culminations as shown in Nautical Almanac			22	52
Difference of observed time, minus difference of right ascension				4 14

Computations

$\Delta = 4\ 14^s = 62.1^s$ Log =	1.79309
Cos. d 86° 36′ 43″ =	8.77306
Cos. d 87° 14′ 04″ =	8.68366
Sec. c 37 Log. =	0.09765
Cosec 6 09.13 =	0.96982
Error of azimuth 2 07″ =	0.31722

West on 148th Mile

Variation 2° East

West from Astronomical Monument No. 5 which is 70.15 chs. West from 147th mile corner.

1.75 Rio Grande, course S. E., general course S. S. E. It flows through a most regular perpendicular canon, composed of [fol. 448] volcanic rock 70 feet below the common level of the country. It retains the sameness of width and depth for many miles and nothing whatever indicates its existence, until arriving at its edge, the deep abyss below is first discovered. It has a swift current, about 6 miles per hour, clear water rocky bottom and its average depth, about 5 feet.

3.5 Place for 148th mile corner in river and impossible to establish it.

Surface level.

Soil 3rd rate.

Chains

West on 149th Mile

Variation

From a point on West bank of Rio Grande on line 1 formed a right angle triangle A B C, measured angles A = 90 B 66° 35', hence the angle C = 23° 25', measured side A B = 5 chs.

Point C Astronomical Monument

Sin 23° 25' =		9.599244
Sin 66° 35' =		9.962672
Log 5 chs =		0.698970
	11.545 chs	1.0662398

Therefore 1 79½ lks. over Rio Grande.

Variation at this point 2° East, at a point 5 chs. South 20° East.

80.00 Offset from tangent to Parallel to 149th mile corner.

Marked volcanic stone 8x7x4 -149 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -149 M.- respectfully.

No natural objects near.

Surface gently rolling, covered with volcanic stone.

Soil 2nd rate.

West on 150th Mile

Variation (at corner) 12° 50' East.

80.00 Offset from tangent to Parallel, to 150th mile corner.

Marked stone 6x6x6 -150 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over

[fol 449] same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 22x8x8 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -150 M.- respectfully.

Variation changes from 12° 50' to 14° East.

Surface gently rolling, covered with volcanic stone and gravel.

Soil 3d rate.

Sept. 6th. Measuring chain compared with standard and found correct.

Chains

West on 151st Mile

Variation 13° 30' East.

80.00 Offset from tangent to Parallel, to 151st mile corner.
Marked stone 8x6x4 -151 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -151 M.- respectively.
Va. changeable, on line.
From which
A conical mound bears N. 35 E., 40 chs. dist
Ute Mountain, bears S. 52 E.
Conical Peak, bears S. 4 E.
High point on mountain ridge bears S. 12 E. 18 miles dist
Mountain ridge, bears S. 5 W.
Conical Peak, bears S. 15 W.
Conical Peak, on mountain ridge bears S. 22 W., 30 miles dist.
Surface gently rolling, covered with volcanic stone and gravel.
Soil 3d rate.

West on 152nd Mile

Variation 12° East.

60.00 Foot of mountain ridge, 800 feet high, bears S. S. E.

80.00 Offset from tangent to Parallel, to 152nd mile corner, on top of mountain ridge.
Marked volcanic stone 10x6x4 -152 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set volcanic
[fol. 450] stone 36x14x8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -152 M.- respectively.
No natural objects near.
Variation 12° East.
Surface except mountain ridge rolling, covered with volcanic stone.
Soil 3d rate.

West on 153d Mile

Variation 12° East.

30.00 Leave mountain ridge and enter valley, bears N. W.

80.00 Offset from tangent to Parallel to 153d mile corner.

Chains

Marked stone 8x6x4, -153 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18x10x4, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -153 M.- respectively.
No natural objects near.
Surface except ridge, gently rolling.
Soil 2nd rate.

West on 154th Mile

Variation 13° East.

80.00 Offset from tangent to Parallel to 154th mile corner.
Marked stone 8x8x3 -154 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square, and 18 in. deep. Set volcanic stone 30x12x6; projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -154 M.- respectively.
No natural objects near.
Surface gently rolling prairie covered with stone.
Soil 3d rate.
Sept. 7th. Measuring chain compared with standard and found correct.

West on 155th Mile

Variation 12° 50′ East.

80.00 Offset from tangent to Parallel, to 155th mile corner.
Marked stone 6x6x4 -155 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound,
[fol. 451] 2 feet square and 18 in. deep. Set volcanic stone 48x13x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -155 M.- respectively.
No natural objects near.
Surface gently rolling, covered with sage brush and volcanic stone.
Soil 3d rate.

West on 156th Mile

Variation 13° 20′ East.

80.00 Offset from tangent to Parallel to 156th mile corner.
Marked stone 10x10x6 -156 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 16x8x8, projecting 6 in. above mound, marked on the North, South,

Chains

West and East sides -C.- -N. M.- -1868- -156 M.- respectively
No natural objects near.
Surface gently rolling, covered with sage brush and volcanic stone.
Soil 3d rate.

West on 157th Mile

Variation 13° 50′ East.

80.00 Offset from tangent to Parallel to 157th mile corner.
Marked stone 8x6x4 -157 M.- and deposited it, 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -157 M.- respectively.
No natural objects near.
Surface gently rolling, covered with volcanic gravel; sage brush and weeds.
Soil 3d rate.

West on 158th Mile

Variation 13° 20′ East.

41.00 A stone mound, about 4 feet at base and 2½ feet high, bears South 475 lks. No marks discovered on it, and supposed to have been placed there by some former surveying party.

80.00 Offset from tangent to Parallel to 158th mile corner.
[fol. 452] Marked stone 8x6x4 -158 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x14x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -158 M.- respectively.
No natural objects near.
Surface gently rolling, covered with volcanic gravel and stone.
Soil 3d rate.
Sept. 8th. Measuring chain compared with standard and found correct.

West on 159th Mile

Variation 13° 20′ East.

80.00 Offset from tangent to Parallel, to 159th mile corner.
Marked stone 5x5x4, and deposited it 3½ feet in earth.

Chains

Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28x14x6 projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -159 M.- respectively.
From which point a
Mound, bears N. 9 E., 2 miles distant.
Point of mountain ridge, bears N. 17 E., 8 m. dist.
Point of mountain ridge, near Rio Grand bears N. 67 E., 11 miles dist.
Ute mountain, bears S. 75 E.
Conical Peak on San Antonio Mountain bears S. 30 W.
Mountain Peak, bears N. 70 W., 14 miles dist.
Surface gently rolling, covered with stone, sage brush and weeds.
Soil 3d rate.

West on 160th Mile

Variation 13° 40′ East.

80.00 Offset from tangent to Parallel to 160th mile corner.
Marked stone 10x6x3 -160 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone, 24x12x6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -160 M.- respectively.
No natural objects near.
[fol. 453] Surface gently rolling.
Soil 3d rate.

West on 161st Mile

Variation 13° 40′ East.

80.00 Offset from tangent to Parallel, to 161st mile corner.
Marked stone 12 x 6 x 6 161M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24 x 12 x 8. projecting 8 in. above amound, marked on the North, South, West and East sides C. N. M. 1868 161M. respectively.
No natural objects near.
Surface gently rolling prairie.
Soil 3d rate.

Chains

West on 162nd Mile

Variation 13° 40′ East.

39.40 Road leading from Conejos, Col., to Santa Fe, N. M. bears North and South. Built witness mound of earth, and set volcanic stone 18 x 12 x 4, marked on the North C. South N. M. West 1868. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep.

80.00 Offset from tangent to Parallel, to 162nd mile corner. Marked stone 8 x 6 x 4 162M. and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20 x 12 x 8, projecting 6 in. above mound, marked on the North, South, West and East sides C. N. M. 1868 162M. respectively.
No natural objects near.
Surface gently rolling, covered with sage brush and weeds.
Soil 3rd rate.

West on 163d Mile

Variation 13° 40′ East.

74.75 A mound bears S. 8 E.
A mound, bears S. 10 E.

80.00 Offset from tangent to Parallel, to 163d mile, corner. Marked stone 10 x 6 x 4 and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20 x 16 x 4, projecting 6 in. above mound, marked on the North, South, [fol. 454] West and East sides C. N. M. 1868 163M. respectively.
No natural objects near.
Surface gently rolling, covered with sage brush and weeds.
Soil 3d rate.

West on 164th Mile

Variation 13° 40′ East.

65.40 Road bears North and South. Built witness mound of earth, 4 feet high. Set volcanic stone 14 x 6 x 5, projecting 6 in. above mound, marked on the North, South and West sides C. N. M. 1868 respectfully.

80.00 Offset from tangent to Parallel to 164th mile corner. marked stone 6 x 6 x 3 164M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 16 x 8 x 6, projecting 6 in. above mound, marked on the North, South, West and East sides C. N. M. 1868 164M. respectively.

Chains

No natural objects near.
Surface gently rolling prairie.
Soil 3d rate.

West on 165th Mile

Variation 13° 20′ East.
39.50 Road bears N. W. and S. E.
73.80 Top of bluff, bears N. N. E.
76.00 Canon, bears North.
79.50 Leave canon, bears North.
80.00 Offset from tangent to Parallel to 165th mile corner, on side of hill.
Marked stone 6 x 6 x 3 165M. and deposited it 3½ feet in earth. Built conical mound of stone 4 feet high, over same. Dug pits 10 lks. East and West from base of mounds, 2 feet square and 18 in. deep. Set volcanic stone 20 x 8 x 8, projecting 6 in. above mound, marked on the North, South, West and East sides C. N. M. 1868 165M. respectively.
No natural objects near.
Surface gently rolling, covered with volcanic stone, sage brush and weeds.
Soil 3d rate.
Sept. 9th. Measuring chain compared with standard and found correct.

[fol. 455] West on 166th Mile

Variation 13° 20′ East.
3.50 Top of hill, Village of San Antonio, bears N. 18 E.
37.50 Top of bluff, 300 feet high, bears N. 30 E.
Variation 13° 20′ East.
San Antonio Village, bears N. 13 E. and N. 32 W.
San Antonio Peak bears S. 8 E.
Mountain peak, bears S. 8 W. S. 12 W. N. 55 W.
Mountain Peak bears N. 6 E.
41.50 Base of bluff, a creek, 90 lks. wide, clear water, 6 in. deep, rapid current, gravelly bottom, course North.
42.50 Enter bottom, covered with willow brush and scattering cottonwood trees, bears S. S. E. An old sheep corral just south of line.
Variation (in bottom) 13° 51′ East.
43.00 Rio San Antonio, 50 lks. wide, clear water, rapid current, stony bottom, course North.
80.00 Offset from tangent to Parallel to 166th mile corner, in bottom.

Chains

Marked stone 6 x 6 x 3 166M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set Pine post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides C. N. M. 1868 166M. respectively. From which

A cottonwood tree, 14 in. dia., bears S. 40 E., 105 lks. dist.
No other tree near.
Soil in valley 1st rate.
Surface except ridge, level.

West on 167th Mile

Variation 13° 50′ East.

30.00 Rio los Pinos, 70 lks. wide, clear water, 20 in. deep, swift current, stony bottom, course E. N. E.
Leave willow brush and cottonwood timber.

50.00 Canal for irrigation, 10 lks. wide, now dry.

54.50 Canal for irrigation, 15 lks. wide, and enter recently cultivated fields bearing North.

80.00 Offset from tangent to Parallel, to 167th mile corner.
Marked stone 6 x 4 x 3 167M. and deposited it, 3½ feet in earth. Built mound conical of earth, 4 feet high, over [fol. 156] same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone, 24 x 12 x 10, projecting 8 in. above mound, market on the North, South, West and East sides C. N. M. 1868 167M. respectively.
No natural objects near.
Surface level bottom.
Soil 1st rate.

West on 168th Mile

Variation 13° 50′ East.

0.50 Leave field, bears N. W.

33.00 Leave bottom, bears S. W. and North.

43.00 Top of bluff, 350 feet high, 25 feet from summit, it becomes perpendicular, covered with volcanic rock, bears S. W. and North.
Village of San Antonio, bears S. 60 E.
Variation 10° East.
2 chs. West 13° East.

56.00 Wood road, bears N. W.

62.50 Enter scattering pinion Pine timber, bears N. W.

80.00 Offset from tangent to Parallel, to 168th mile corner.

Chains

Marked stone 7 x 6 x 4 -168 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 14 x 8 x 6, projecting 6 in. above mound, marked on the North, South West and East sides -C- N. M. - -1868- -168 M.- respectively.
No natural objects near.
Surface level (except bluff), covered with volcanic stone and sage brush and for 15 chs. 3d rate, pinion Pine timber.
Soil 3d. rate.

West on 169th Mile

Variation 13° 55′ East.

10.00 Top of bluff, bears E. N. E.
30.00 Leave Pine timber, bears E. N. E.
57.00 Enter 3d. rate scrub pinion Pine timber, bears W. N. W
68.00 Leave same and enter sage brush Prairie, bears W. N. W
80.00 Offset from tangent to Parallel, to 169th mile corner.
Marked stone 10 x 6 x 4 -168 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30 x 14 x 5, projecting 8 in. above mound, marked on the North,
[fol. 457] South, West and East sides -C- -N. M.- -1868- -169 M.- respectively.
No natural objects near.
Surface rolling and stony.
Soil 3d. rate.
Sept. 10th. Measuring chain compared with standard and found correct.

West on 170th Mile

Variation 13° 50′ East.

64.50 Dry bed of creek, 10 lks. wide, stony bottom, course N. E.
80.00 Offset from tangent to Parallel to 170th mile corner.
Marked stone 4 x 4 x 3 -170 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 20 x 10 x 8, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -170 M.- respectively.
No natural objects near.
Surface broken, covered with stone and sage brush.
Soil 3d rate.

Chains

West on 171st Mile

Variation 13° 50' East
59.50 Canon, 100 lks. wide, bears N. E.
80.00 Offset from tangent to Parallel, to 171st mile corner
Marked stone 6 x 6 x 4 -171 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 26 x 10 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -171 M.- respectively.
No natural objects near.
Surface rolling Prairie.
Soil 2nd rate.

West on 172nd Mile

Variation 13° 50' East.
52.00 Enter 2nd rate Pine timber, bears N. E.
55.25 Road, bears E. N. E.
70.00 Leave timber, bears S. E.
80.00 Offset from tangent to Parallel to 172nd mile corner, in trail which bears W. N. W.
Marked stone 5 x 5 x 4 -172 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over
[fol 458] same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 28 x 9 x 5, projecting 8 in. above mound, marked on the North South, West and East sides -C- -N. M.- -1868- -172 M.- respectively.
No natural objects near.
Surface broken Prairie.
Soil 2nd rate.

West on 173d Mile.

Variation 13° 50' East.
37.00 Enter scattering 2nd rate Pine timber, bears North
42.00 Indian trail, bears S. W.
38.79 Volcanic stone boulder 10 x 6 x 4 feet, about 2 feet south of line.
80.00 Offset from tangent to Parallel to 173d mile corner
Marked stone 7 x 6 x 4 -173 M.- and deposited it 2½ feet in earth. Built conical mound of earth, 8 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 13 x 10 x 4, projecting 6 in. above mound, marked on the North.

Chalas

South, West and East sides -C- -N. M.- -1868- -173 M.- respectively.
No natural objects near.
Surface broken Prairie.
Soil 2nd rate.
Sept. 11th. Measuring chain compared with standard and founds correct.

West on 174th Mile

Variation 13° 50′ East.
37.00 Enter 2nd rate Pine timber, bears S. W.
53.80 Indian trail, bears N. N. W.
54.00 Dry bed of creek, course N. N. W.
80.00 Offset from tangent to Parallel, to 174th mile corner.
Marked stone 12 x 7 x 3 -174 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 15 x 12 x 6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -174 M.- respectively.
From which point a
Norway Pine tree 18 in. dia. bears S. 20 W. 78 lks. dist.
Yellow Pine tree, 12 in. dia., bears N. 68 E. 31 lks. dist.
Surface broken, last half covered with 2nd rate Pine timber.
Soil 2nd rate.

[fol. 459]

West on 175th Mile

Variation 13° 51′ East.
28.50 Canon, 200 lks. wide, bears N. N. E.
64.50 Canon, 150 lks. wide, bears North
80.00 Offset from tangent to Parallel to 175th mile corner, which is a pine tree, 8 in. dia. Bark removed, squared, etc., marked on the North, South, West and East sides -C- -N. M.- -1868- -175 M.- respectively.
From which point
A pine tree, 24 in. dia., bears N. 63 W., 41 lks. dist.
A pinion Pine tree, 10 in. dia., bears S. 55 W., 31 lks. dist.
Surface broken, covered with 2nd rate Pine timber and an undergrowth of Pine and aspen brush.
Soil 2nd rate.

Chains

West on 176th Mile

Variation 13° 52' East.

38.00 Leave Pine and Aspen timber and enter Prairie bears South and N. W.

53.00 Enter 2nd rate Pine and Fir timber, bears N. E. and S. S. W.

80.00 Offset from tangent to Parallel, to 176th mile corner. Marked stone 13 x 6 x 4 -176 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 16 x 6, projecting 6 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -176 M.- respectively.

From which point

A pine tree, 24 in. dia. bears S. 68 W., 72 lks. dist.

A Fir tree, 12 in. dia., bears N. 75 E., 31 lks. dist.

Surface broken, covered with 2nd rate Pine and Fir timber.

Soil 2nd rate.

Sept. 12th. Measuring chain compared with standard and found correct.

West on 177th Mile

Variation 13° 52' East.

49.00 Leave Pine, Aspen and Fir timber, bears W. S. W.

73.50 Enter Pine, Aspen and Fir timber, bears N. and S.

80.00 Offset from tangent to Parallel, to 177th mile corner. Marked stone 8 x 6 x 3 -177 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of [fol. 460] mound, 2 feet square and 18 in. deep. Set sand stone 22 x 12 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -177 M.- respectively.

From which point

A Fir tree, 20 in. dia., bears N. 13 W., 28 lks. dist.

A Fir tree, 18 in. dia., bears S. 5 E., 47 lks. dist.

Surface broken, covered with 2nd rate Pine and Aspen and Fir timber.

Soil 2nd rate.

West on 178th Mile

Variation 13° 52' East.

80.00 Offset from tangent to Parallel, to 178th mile corner.

Chains

Marked stone 10 x 6 x 4 -178 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 16 x 14 x 8, pt jecting 6 in. above mound, marked on the North, South, West and East sides -C.- -X. M.- -1868- -178 M.- respectively.

No natural objects near

Surface rolling, covered with fallen timber, destroyed about 6 years previous.

Soil 2nd rate.

West on 179th Mile

Variation 13° 52' East.

69.00 Top of bluff, descending along side of same.

80.00 Offset from tangent to Parallel to 179th mile corner.

Marked stone 6 x 4 x 3 -179 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 30 x 20 x 16, projecting 8 in. above mound marked on the North, South, West and East sides -C.- -X.- M.- -1868- -179 M.- respectively.

From which

A Pine tree, 14 in. dia., bears S. 13 E., 34 lks. dist.

A Fir tree, 18 in. dia., bears N. 3 E., 24 lks. dist.

Surface broken

Soil 3d rate

West on 180th Mile

Variation 12° East

42.50 Enter valley, bears S. W.

50.50 Creek, 20 lks. wide, clear but shallow water, rapid current,

[fol. 461] stony bottom, course S. E.

61.75 A large perpendicular volcanic stone, 175 feet high, about 50 feet at base, 3 chs. dist.

70.00 Large volcanic bould[illegible] running to a peak, 15 feet high, and 20 feet at base.

Variation 15° 30' East.

78.00 Top of bluff, bears North and S. E.

80.00 Offset from tangent to Parallel to 180th mile corner.

Marked stone 6 & 6 x 4 -180 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 8 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- X. M.- -1868- -180 M.- *respectfully*.

Chains

No natural objects near.
Surface mountainous, covered with fallen timber and an undergrowth of small aspen timber.
Soil 3d rate.

West on 181st Mile

Variation 15° East.

72.80 Top of perpendicular cliff, about 30 feet high, bears S. E.
Variation (on mountain side) 12° East.

80.00 Place for 181st mile corner, impossible to establish it.
Surface broken, covered with fallen and an undergrowth of *aspen* timber.
Soil 3d rate.
Sept. 13th. Measuring chain compared with standard and found correct.

West on 182nd Mile

Variation 15° East.

1.00 To perpendicular cliff, 100 feet high. To avoid cliff and perpendicular bluff, I offset South 4 chs.; then West 20 chs., then offset back to line.

20.00 Leave 2nd rate Pine, Fir and Aspen timber, bears N. W.

40.50 Rio los Pinos, 60 lks. wide, clear water, 12 in. deep, rapid current, stony bottom, course S. S. E.

48.70 To astronomical monument No. 6 which is represented by a sand stone, 5 feet long, 20 in. wide and 10 in. thick, set 2 feet in earth, marked on the North, South, West and East sides "Colorado," "New Mexico," "1868," "37 N. L.," *respectfully*. Built mound of cobble stone, 6 feet at base,
[fol. 462] 3 feet high and 4½ feet at top. Dug pits on the North, South, East and West sides.
Observations for Asimuth, at Astronomical Monument No. 6, on d Ursae Minoris, Dec. 86° 36' 44" .1 L. A. 18h. 14m. 49.46s., and 51 Cephei Dec. 89° 14' 33" .5 Sept. 15th, 1868.
Chronometer fast a mean noon, on Solar time 7 h 49 m 26 s. with a losing rate of 16 s. per day.

	h	m	s
Chronometer time of observations of d Ursae Minoris, upper transit	12	22	00
Chro. time of observations 51 Cephei	12	41	36
Chronometer interval		22	36 s
Chronometer rate			0.27
Reduction to Sidereal time			3.73
Sidereal interval	22	40	00
Interval between upper and lower transit	22	36	5

3.5

Chains

Computation—

Δ 3s. 5° = 52.″ 5

Cos. d. 86° 36′ 44″	8.77300
Cos. d. 87° 14′ 33″	8.68366
Sec. ϕ 37°	0.09165
Cosec. 6° 09′ 13″	0.96982
1.74	0.24429

West from Astronomical Monument No. 6 on 182nd Mile

Variation 15° East.

0.30 Leave valley, bears N. 25 W.

11.80 Top of mountain ridge, bears South.

16.80 Leave fallen timber and enter prairie valley, course N. N. E.

17.80 Dry bed of creek, stony bottom, course N. N. E.

31.30 Offset from tangent to Parallel, to 182nd mile corner. Marked stone 10 x 6 x 3 -182 M.- and deposited 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 18 x 8 x 8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.-.-N. M.- -1868- -182 M.- respectively.

No natural objects near.

[fol. 463] Surface mountainous, covered with fallen timber.

Soil 3d rate.

West on 183d Mile

Variation 13° 50′ East.

39.00 Branch of the Rio los Pinos, 20 lks. wide, clear water, rapid current, stony bottom; general course N. E.

52.50 Canon, 200 lks. wide, bears S. E.

80.00 Offset from tangent to Parallel, to 183d mile corner. Marked stone 8 x 4 x 3 -183 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 18 x 10 x 8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.-.-N. M.- -1868- -183 M.- respectively.

Chains

No natural objects near.
Surface mountainous, covered with fallen timber and Aspen brush.
Soil 2nd rate

West on 184th Mile

Variation 13° 50' East.
71.00 Top of ridge, descending into canon, bears North.
79.70 Canon, 600 feet deep, bears N. N. E.
80.00 Offset from tangent to Parallel, to 184th mile corner.
Marked stone 12 x 7 x 3 -184 M.- and deposited it, 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 14 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -184 M.- respectively.
From which point
Valley of the Los Pinos, bears North, 30 chs. dist.
Surface mountainous.
Soil 3rd rate.

West on 185th Mile

Variation 13° 50' east.
0.30 Creek, 12 lks. wide, clear water, rapid current, rocky bottom, course N. N. E.
1.00 Leave canon, bears N. N. E., and ascend steep mountain side.
9.00 Top of bluff, bears N. N. E.
26.00 Small spring branch, a little south of line, course E. N. E.
[fol. 464] and E. S. E.
80.00 Offset from tangent to Parallel, to 185th mile corner.
Marked stone 10 x 8 x 3 -185 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 16 x 10 x 6, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -185 M.- respectively.
From which point
A Fir tree, 16 in. dia. bears S. 58 W., 11 lks. dist.
A spruce tree, 8 in. dia. bears N. 58 E. 7 lks. dist.
Surface broken, covered with fallen timber, aspen brush and a few fir and spruce trees.
Soil 3d rate.
Sept. 16th. Measuring chain compared with standard and found correct.

Chains

West on 186th Mile

Variation 13° 55′ East.

3.00 Creek, 2 lks. wide, clear water, rapid current, course North.

9.40 Point of mountain, bears N. 78 W.
Hay stack mound on snowy range, bears N. 60¼ W.
High point on same, bears N. 53 W.
Offset on same, bears N. 47½ W.
High Point, bears N. 32½ W.

61.50 Leave heavy fallen timber and enter Prairie valley, bears North.

74.50 Creek, 20 lks. wide, clear water, rapid current, rocky bottom, course N. N. E.

76.00 Indian trail, bears S. S. W.

80.00 Offset from tangent to Parallel, to 186th mile corner. Marked stone 12 x 6 x 7 -186 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 16 x 12 x 10, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- N. M.- -1868- -186 M.- respectively.
From which point
A Spruce tree, 18 in. dia., bears S. 37 E., 27 lks. dist.
No other tree near.
Small Peak, bears N. 70 W., about 20 chs. dist.
Small Peak, bears N. 15 W., about 15 chs. dist.
High Point, bears N. 30 E., about 1¾ miles dist.
High Point, bears N. 58 E., about 2 miles dist.
High Point bears S. 4 E., about 1 mile dist.

[fol. 465] Point of mountain ridge bears N. 54 W., ¾ M. dist.
Surface mountainous, 10 chs. from corner, the line runs along a side hill, that descends to the North, for 20 chs., covered with thick fallen Fir and Spruce timber.
Soil 2nd.

West on 187th Mile

Variation 13° 56′ East.

17.00 Leave valley and enter fallen timber, bears N. E.

48.00 Commence to descend into valley, bears S. W. and N. E.

72.00 Leave fallen timber, bears S. S. W.

75.20 Creek, 8 lks. wide, clear water, rapid current, rocky bottom, course N. N. E.

80.00 Offset from tangent to Parallel, to 187th mile corner. Marked stone 6 x 5 x 4 -187 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 12 x 10, projecting 8 in. above mound marked on the North, South,

Chains

West and East sides of -N. M.- -1868- -187 M.- respectively.
No natural objects near.
Surface mountainous, covered with fallen timber.
Soil 2nd rate.

West on 188th Mile

Variation 13° 50' East.
8.00 Leave valley and enter fallen timber, bears South.
25.00 Top of mountain ridge, 600 feet above level of valley, bears S. S. W. Variation 15° East.
28.50 Mountain Peak bears N. 75 W.
Offset of mountain ridge, bears N. 70 W.
Hay stack Peaks, bears N. 60 W. = N. 35 W.
Mountain ridge bears N. 42 W.
Offset of mountain ridge--bears N. 36 W.-N. 26 W.-N. 12 W.
Mountain ridge, bears N. 70 W.
72.50 Creek, 6 lks. wide, clear water, rapid current, bears N. N. W.
80.00 Offset from tangent to Parallel to 188th mile corner.
Marked stone 8 x 6 x 3 -188 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep., Set volcanic stone 24 x 10 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -188 M.- respectively.
From which point a
[fol. 466] Timbered hill, bears S. 27 W.-S. 47 W.
Prairie Peak, bears S. 65 W.-S. 72 W.
Volcanic stone boulder, 15 x 10 x 10 feet, on volcanic ledge, or Peak, bears N. 67 W.
Volcanic ledge, on side hill, bears N. 57 W.
West Point of mountain ridge, or ledge of rock, bears N. 7 E.
A Spruce tree, 12 in. dia., bears N. 8 W., 190 lks. dist.
No other tree near.
Surface mountainous.
Soil 2nd rate.
Sept. 17th. Measuring chain compared with standard and found correct.

West on 189th Mile

Variation 14° East.
5.50 Enter valley, bears E. N. E.
6.60 Creek, 10 lks. wide, clear water, rapid current, course E. N. E.

Chains

15.00 Leave valley, bears E., S. E.
17.80 Volcanic boulder, bears N. 63 E., 10 lks. dist.
Rock on end of ridge, bears N. 10 W., 12 chs. dist.
37.50 Top of mountain ridge, commence to descend side of mountain, 800 feet high, bears N. E. and S. 80 W.
61.50 Perpendicular cliff of volcanic stone, 100 feet high, about 50 lks. South of line.
80.00 Place for 189th mile corner on side of bluff, impossible to establish corner.
No natural objects near.
Surface mountainous.
Soil 3d rate.

West on 190th Mile

Variation 14° East.
10.50 Enter Prairie valley, covered with a fine growth of grass, bears N. W.
15.84 High volcanic Peaks bears S. 42 E. = S. 20 E. = S. 7 E. = S. 15 W. = N. 63 W.
Point of mountain ridge, bears N. 55 W.
Point of volcanic rocks bears N. 45 W.— N. 33 W.
Slide of mountain top, having the appearance of white sand, bears N. 28 W., about 2½ miles dist.
51.00 Creek, 5 lks. wide, clear water, rapid current, course North.
51.25 Large volcanic boulder, 6 lks. South.
56.50 Creek, 8 lks. North, course North.
65.00 Top of bluff, descend into valley.
80.00 Offset from tangent to Parallel, to 190th mile corner.
[fol. 467] Marked stone 6x4x4 -190 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr. and 18 in. deep. Set sand stone 16x8x8, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -190 M.- respectively.
No natural objects near.
Surface mostly gently rolling and descending to the N. W.
Soil 1st rate.
Sept. 18th. Measuring chain compared with standard and found correct.

West on 191st Mile

Variation 14° East.
11.50 East fork of the Rio Charmer, 150 lks. wide, clear water, [redacted] current, stony bottom, course W. S. W.
13.25 Leave Rio Charmer, course W. S. W., general course South.

Chains

High banks.

31.38 Indian trail, bears N. W.

53.25 Creek, 15 lks. wide, clear water, 2 in. deep, rapid current, stony bottom, course S.

69.00 Creek, 10 lks. wide, high banks, clear water, rapid current, course South.

80.00 Offset from tangent to Parallel, to 191st mile corner.
Marked stone 8x6x3 -19 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set volcanic stone 24x10x5, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -191 M.- respectively.
From which
A volcanic ledge of rock, bears N. 28 E. = N. 38 E.
Volcanic rock on ridge, bears S. 68 E. = S. 60 E.
Volcanic rock on ridge, bears S. 45 E.
Mountain ridge having the appearance of white sand, bears S. 10 E.
Valley to the South.
Surface broken.
Soil 2nd rate.

[fol. 468]

West on 192nd Mile

Variation 13° East.

9.30 Stone, 20x10x6 feet, formed of Volcanic gravel.

15.00 Mountain slide, bears South.

30.00 Leave same at Point of mountain.
Volcanic rock North, 200 feet dist.
Variation 15° East.

35.00 Enter 2nd rate Pine and Fir timber, bears North.

61.00 Creek, 10 lks. wide, clear water, 3 in. deep, rapid current, course S. W.

80.00 Offset from tangent to Parallel to 192nd M. temporary corner.
Surface mountainous.
Soil 2nd rate.

West on 193d Mile

Variation 13° East.

23.50 Leave Pine and Fir timber and enter valley, bears S. W.

73.75 Creek, 15 lks. wide, muddy water, rapid current, stony bottom, course S. S. W.

Chains

80.00 Offset from tangent to Parallel, to 193d mile temporary corner.
Surface gently rolling.
Soil 2nd rate.
Sept. 18th. Measuring chain compared with standard and found correct.

West on 194th Mile

Variation 14° East.
16.50 Creek, 15 lks. wide, clear water, rapid current, stony bottom, course S. S. W.
23.00 Bed of Rio Charmer stony bottom course North, and
24.00 to water, 70 lks. wide, clear water, 24 in. deep, rapid current, stony bottom, course South, general course S. S. E.
Banks on East side low, on West side 6 ft. high.
28.00 Leave valley and enter fallen timber, bears South.
48.50 Enter valley, bears S. E.
50.00 Creek, 15 lks. wide, clear water, 3 in. deep, rapid current, stony bottom, course S. E.
Enter 2nd rate Fir and Aspen timber, bears S. E.
68.00 Creek, 10 lks. wide, clear water, rapid current, stony bottom, course E. S. E.
80.00 Offset from tangent to Parallel, to 194th mile temporary corner.
[fol. 469] Surface, after leaving valley, mountainous, covered with 2nd rate Pine and Fir timber.
Soil 2nd rate.

West on 195th Mile

Variation 14° East.
16.50 Enter dead timber, bears South
35.00 Creek 6 lks. wide, clear water, rapid current, course E. S. E. and enter 2nd rate Fir and Aspen timber, bears E. S. E.
68.50 Creek 3 lks. wide, clear water, rapid current, course E. N. E. and enter dead and fallen timber.
80.00 Offset from tangent to Parallel to 195th M. temporary corner on top of mountain ridge.
Surface mountainous, covered with 1st rate Pine and Fir timber.
Soil 1st rate.

West on 196th Mile

Variation 13° 55′ East.
26.00 Enter swamp, covered with willow brush, and fallen timber, bears N. W.

Chains

37.50 Leave swamp, bears S. E. and N. W.
79.00 Enter 2nd rate Pine and Fir timber, bears N. and S.
80.00 Offset from tangent to Parallel, to 196th mile temporary corner.
Surface broken, mostly covered with fallen timber.
Soil 2nd rate.

West on 197th Mile

Variation 13° 55' East.
60.00 Leave 1st rate Pine and Fir timber and enter aspen brush, on side mountain, bearing to the South.
80.00 Place for 197th mile temporary corner, impossible to establish it.
Surface mountainous.
Soil 2nd rate.
Sept. 19th. Measuring chain compared with standard and found correct.

West on 198th Mile

Variation 14° East.
4.00 Foot of hill, to ravine, 50 lks. south.
11.00 Top of high bluff, bears North and South.
20.00 Enter 2nd rate Aspen timber, bears S. E.
37.50 Enter valley, bears South.
40.00 Creek, 15 lks. wide, clear water, 4 in. deep, rapid current,
[fol. 470] stony bottom, course South, thick willow brush along banks.
42.00 Leave valley and enter Aspen brush, bears S. E.
70.00 Enter 2nd rate Fir timber, bears N. E.
80.00 Offset from tangent to Parallel to 198th mi. corner temporary.
Surface mountainous, mostly covered with aspen timber.
Soil 2nd rate.

West on 199th Mile

Variation 14° East.
10.50 Creek, 15 lks. wide, clear water, rapid current, course S. S. W.
34.25 Top of mountain ridge.
Stone wall on west side bears North.
57.50 Leave 2nd rate Aspen timber, bears South.
80.00 Offset from tangent to Parallel, to 199th mile, temporary corner.
Surface mountainous.
Soil 2nd rate.

Chains

West on 200th Mile

Variation 14° East.
1.00 Small stream in bottom of canon, bears South.
80.00 Offset from tangent to Parallel to 200th mile temporary corner.
Surface broken.
Soil 2nd rate.

West on 201st Mile

Variation 14° East.
3.10 Creek, 10 lks. wide, clear water, 6 in. deep, rapid current, course S. E.
40.00 Greatest depression of valley. A creek 5 lks. wide, clear but sluggish water, 10 in. deep, course S. E.
Several small spring branches near.
59.20 Indian trail, bears S. E.
80.00 Offset from tangent to Parallel to 201st mile temporary corner.
Surface rolling.
Soil 2nd rate.

West on 202d Mile

[fol. 471] Variation 14° East.
15.50 Creek, 8 lks. wide, clear water, rapid current, stony bottom, course N. E., willow brush on banks.
22.50 Enter 2nd rate Pine Fir and Aspen timber, bears N. and S.
44.00 Creek, 2 lks. wide, clear water, course North.
80.00 Offset from tangent to Parallel to 202nd mile temporary corner.
Surface broken, covered with 1st rate Aspen and fir timber, and an undergrowth of Oak and Aspen brush.
Soil 2nd rate.
Sept. 20th. Measuring chain compared with standard and found correct.

West on 203d Mile

Variation 14° East.
14.00 Summit of the divide of the Atlantic and Pacific waters, bears N. N. E.
68.50 Creek, 2 lks. wide, clear but shallow water, gentle current, course N. N. W.
80.00 Offset from tangent to Parallel to 203 mile temporary corner.

Chains

Surface broken on side of mountain and descend to the North.
Soil 2d rate.

West on 204th Mile

Variation 14° East.

1.00 Pond of water, or sink hole, 150 lks. wide, muddy water, average depth, 10 in.
42.00 Leave 2nd rate Pine and Aspen timber, and enter Oak brush, bears North.
80.00 Offset from tangent to Parallel to 204th mile, temporary corner.
Surface broken about ½, covered with Aspen and Fir timber, balance Oak brush.
Soil 2nd rate.

West on 205th Mile

Variation 14° East.

60.00 Leave Oak brush and enter Prairie valley, bears W. S. W.
79.75 Creek, 2 lks. wide, clear water, swift current, gravelly bottom, course W. S. ..
80.00 Offset from tangent to Parallel to 205th mile temporary
[fol. 472] corner.
Surface broken.
Soil 2nd rate.

West on 206th Mile

Variation 14° East.

5.00 Leave valley, bears W. S. W.
60.00 Enter 2nd rate Pine timber, bears North and South.
79.00 Enter valley, bears S. S. W.
80.00 Offset from tangent to Parallel to 206th mile temporary corner.
Surface broken.
Soil 2nd rate.

West on 207th Mile

Variation 13° 59' East.

1.00 Leave valley and enter scattering 2nd rate Pine timber, bears S. S. W.
25.00 Leave timber and enter valley, bears N. W.

Chains

29.50 Creek, 3 lks. wide, clear water, rapid current, course W. S. W.
37.50 Leave valley and enter scattering oak brush, bears W. N. W
58.00 Leave scattering oak brush, and enter valley, bears W. N. W.
80.00 Offset from tangent to Parallel to 207th mile temporary corner.
Surface broken.
Soil 2nd rate.
Sept. 27th. Measuring chain compared with standard and found correct.

West on 208th Mile

Variation 14° East.
4.00 Creek, 10 lks. wide, clear water, rapid current, stony bottom, course W. N. W.
4.40 Trail leading from Tierra Amarilla, N. M. to Pagosa Springs, Colo. bears W. N. W.
9.00 Leave valley, and enter 2nd rate scattering Pine timber and Oak brush, bears W. N. W.
37.00 Leave same, bears W. N. W. Enter valley bears N. W. Creek, 3 lks. wide, clear water, rapid current, course W. N. W.
46.00 Enter Oak brush and scattering 2nd rate Pine timber, bears W. N. W.
55.00 Leave scattering Pine timber, and enter Oak brush, bears
| fol. 473 | W. N. W.
80.00 Offset from tangent to Parallel to 208th mile temporary corner.
Surface broken.
Soil 2nd rate.

West on 209th Mile

Variation 14° East.
77.00 Top of mountain ridge, bears N. and S.
80.00 Offset from tangent to Parallel, to 209th mile temporary corner, in thick Aspen and Oak brush.
Soil 2nd rate.
Surface mountainous, covered with Oak, Aspen and willow brush.

West on 210th Mile

Variation 14° East.
6.00 A deep canon. Set flag on opposite bank of canon and thence North 8 chs., flag bears S. 71° 34′ W. Therefore we have the statement

Chains

	Sin 18° 26′ =	9.499965
	Sin. 71° 34′ =	9.977125
	Log. 8 chs. =	0.903090
	24 chs.	1.380252

30.00 Leave canon, 600 feet deep, and nearly perpendicular sides, bears S. S. W.

38.00 Canon, bears South, 500 feet deep. I set flag on opposite bluff, thence North 10 chs. flag S. 69 W, therefore we have the statement

	Sin. 21° =	9.554329
	Sin. 69° =	9.970152
	Log. 10 chs. =	1.000000
	chs. dist. 26.05 lks.	1.415823

64.05 Leave canon, almost perpendicular sides, of sand stone, bears South.

70.00 Canon, 500 feet deep, nearly perpendicular sides. Set flag on opposite bank, thence North 6 chs. flag bears S. 74 W., 8 chs., flag bears S. 69° 05′ W. Therefore we have the statement

[fol. 474]

Sin. 20° 55′ =	9.552680	Sin. 16° = ...	9.440338
sin. 69° 05′ =	9.970394	Sin. 74° = ...	9.982842
Log. 8 chs. =	0.903090	Log. 6 chs. = ...	0.778151
chs. 20.93 lks.	1.320840	chs. 20.94 lks. ..	1.320655

Mean 20.93½ lks.

80.00 Place for 210th mile corner in canon, impossible to establish corner.
Surface mountainous, covered with thick Oak and Aspen Brush.
Soil 2nd rate.
Sept. 28th. Measuring chain compared with standard and found correct.

West on 211th Mile

Variation 14° East.

10.93 Leave canon, bears South, and enter 2nd rate Pine timber.

80.00 Offset from tangent to Parallel to 211th mile temporary corner.
Surface mountainous.
Soil 3d rate.

Chains

West on 212th Mile

Variation 14° East.

70.00 Canon, 1000 feet deep, bears N. W. nearly perpendicular sides, of sand stone.*

Sin. 14° 22′ =	9.394673	Sin. 19° 46′ = ..	9.528458
Sin. 75° 38′ =	9.986202	Sin. 70° 16′ = ..	9.973716
Log. 10 chs. =	1.000000	Log. 14 chs. = ..	1.146128
39.04 chs.	1.591539	39.03 chs.	1.591386

Mean 39.03½ lks.

A stream of water, about 20 lks. wide, runs in canon, clear water, rapid current, stony bottom, course N. W.

80.00 Place for 212th mile corner on side of bluff, impossible to establish corner.

*Set flag on west side of canon, thence North 10 chs. flag bears S. 75° 38 W. 14 chs. S. 70° 16 W.

East on 206th Mile

Surface mountainous.
Soil 3d rate.

[fol. 475] West on 213th Mile

Variation 14° East.

29.04 Leave canon, 1000 feet deep. Bluffs on each side, nearly perpendicular, and composed of sand stone. A stream of clear rapid water in canon, course N. W.

80.00 Offset from tangent to Parallel, to 213th mile temporary corner.
Surface mountainous.
Soil 3d rate.

West on 214th Mile

Variation 14° East.

51.00 Enter valley, bears N. N. W.
53.00 Creek, 10 lks. wide, clear water, 1 in. deep, rapid current, gravelly bottom, course N. N. W.
55.50 Trail, bears N. N. W.
55.75 Set temporary witness corner, a sand stone 24x8x8.
70.00 Enter wet bottom, covered with willow brush, bears North.
80.00 Place for 214th mile corner in wet bottom subject to overflow to the depth of 7 feet. Impossible to establish corner.
Surface broken.
Soil 2nd rate.

Chains

West on 215th Mile

Variation 14° East.

4.00. Rio Navajoe, clear water, 18 in. deep, swift current, stony bottom, low banks, course S. W.

8.00 Over Rio Navajoe, course S. W.

20.00 Leave wet bottom, bears South.

24.75 Indian trail, bears S. S. W.

25.30 Astronomical monument No. 7. Offset from tangent to Parallel to a point 75 lks. South of astronomical monument No. 7 on Parallel. This monument is identified by a Pine charred post, 14 feet long, 12 in. square, set in a monument of stone, 5 feet high. Post marked on the North, South, West and East sides—"Colorado" "New Mexico" "1868" "37 N. L." respectfully.

Sept. 29th. Measuring chain compared with standard and found correct.

I corrected the line back East to 191st mile corner, a distance of 23 315/1000 miles making a correction of 3 22/100 lks. per mile.

[fol. 476]

East on 214th. Mile

Variation 13° East.

80.00 Place for 214th mile corner in wet bottom, subject to overflow, to the depth of 7 feet, impossible to establish corner.

24.25 Set witness corner, built conical mound of stone. Set sand stone 24x8x8, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- which is 73 lks. North of temporary witness corner.

East on 213th Mile

Variation 13° 59' East.

80.00 Moved temporary corner 70 68/100 lks. North and set true corner. Marked stone 5x4x3 -213 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -213 M.- respectively.

No natural objects near.

Chains

East on 212th Mile

Variation 13.59° East.

80.00 Place for 212th mile corner. Impossible to establish it.
No natural objects near.

East on 211th Mile

Variation 13° 59' East.

80.00 Moved temporary corner 64 24/100 lks. North and set true corner. Marked stone 5x3x3 -211 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long, 6 in. square, beveled at top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -211 M.- respectively.
No natural objects near.

East on 210th Mile

Variation 13° 59' East.

80.00 Place for 210th mile corner in canon but impossible to establish it.
No natural objects near.

[fol. 477] East on 209th Mile

Variation 13° 59' East.

80.00 Moved temporary corner 57 80/100 lks. North and set true corner in thick Aspen and Oak brush. Marked stone 6 x 6 x 3 -209 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -209 M.- respectively.
No natural objects near.

Chains

East on 208th Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 54 58/100 lks. North and set true corner. Marked stone 10 x 6 x 3 -208 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Oak post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -208 M.- respectively.

From which

Mountain Peak, bears N. 26 W., about 30 M. dist.
Point of mountain ridge, bears N. 4. E.
Mountain Peak bears N. 28 E. -N. 70 E.- S. 45 W.

East on 207th Mile

Variation 12° 58′ East.

80.00 Moved temporary corner 51 36/100 lks. North and set true corner. Marked stone 5 x 5 x 4 -207 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred pine post, 8 feet long and 6 in. square, beveled at the top, three feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -207 M.- respectively.

From which point of

Timbered Peak, bears S. 55 W.
Perpendicular ledge of rock, bears S. 25 W. 30 chs. dist.

[fol. 178] East on 206th Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 48 14/100 lks. North and set true corner. Marked stone 6 x 5 x 3 -206 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep.

Chains

Charred Pine post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -206 M.- respectively.

From which point

A Pine tree, 30 in. dia. bears N. 15 E. 250 lks. dist.
A Pine tree, 39 in. dia. bears S. 72 W., 237 lks. dist.

East on 205th Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 44 92/100 lks. North and set true corner. Marked stone 6 x 4 x 3 -205 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred oak post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -205 M.- respectively.

From which point a

High point, bears N. 55 E., 5 chs. dist.
High Point, bears North, 20 chs. dist.
High Point, bears South 25 chs. dist.

East on 204th Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 41 70/100 lks. North and set true corner. Marked stone 3 x 3 x 2 -204 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 16 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -204 M.- respectively.

From which point

Timbered Peak, bears South, 2 miles dist.
Point of perpendicular rock, bears S. 58 W.
Conical Peak, bears N. 3 W., 20 chs. dist.

Chains

[fol. 479]

East on 203d Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 38 48/100 lks. North and set true corner. Marked stone 8 x 6 x 3 -203 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -203 M.- respectively.

From which point

An aspen tree, 1 in. dia. bears N. 5 W., 57 lks. dist.
An aspen tree, 8 in. dia. bears S. 5 W., 25 lks. dist.

East on 202nd Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 35 26/100 lks. North and set true corner. Marked stone 5 x 5 x 4 -202 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Aspen post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- N. M.- -1868- -202 M.- respectively.

From which

An aspen tree, 16 in. dia. bears N. 5 W. 17 lks. dist.
An aspen tree, 12 in. dia. bears S. 7 E., 25 lks. dist.

East on 201st Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 32 04/100 lks. North and set true corner. Marked stone 10 x 6 x 6 -201 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred pine post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -201 M.- respectively.

Chains

From which point a

Conical point, on East of Sierra Navajoe, bears N. 40 E.
Highest point on North of Sierra Navajoe, bears N. 24 W.
[fol. 480] Most Northern point of Southern ridge of Sierra Navajoe bears S. 66 E.

East on 200th Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 28 82/100 lks. North and set true corner. Marked stone 12 x 5 x 4 -200 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -200 M.- respectively.
No natural objects near.

East on 199th Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 25 60/100 lks. North and set true corner. Marked stone 4 x 4 x 3 -199 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Aspen post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -199 M.- respectively.

From which point

An aspen tree, 10 in. dia. bears S. 55 W., 27 lks. dist.
An aspen tree, 8 in. dia., bears S. 45 W., 23 lks. dist.

Chains

East on 198th Mile

Variation 13° 59′ East.

80.00 Moved temporary corner 22 38/100 lks. North and set true corner. Marked stone 6 x 5 x 5 -198 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir post 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -198 M.- respectively.

From which.

A Fir tree, 12 in. dia. bears S. 40 E., 9 lks. dist.
[fol. 481] A Fir tree, 10 in. dia. bears N. 15 W. 6 lks. dist.

East on 197th Mile

Variation 13° 54′ East.

80.00 Place for 197th mile corner, on mountain side, impossible to establish it.

East on 196th Mile

Variation 13° 54′ East.

80.00 Moved temporary corner 15 94/100 lks. North and set true corner. Marked stone 4 x 4 x 4 -196 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep.
Set charred Fir post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -196 M.- respectively.
From which point
A Fir tree, 10 in. dia. bears S. 25 W., 15 lks. dist.
A Fir tree, 15 in. dia. bears N. 25 E., 23 lks. dist.
Summit of mountain ridge, bears South.

Chains

East on 195th Mile

Variation 13° 59' East.

80.00 Moved temporary corner 12 72 100 lks. North, and set true corner on top of mountain ridge. Marked stone 6 x 5 x 4 -195 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -195 M.- respectively.
No natural objects near.

East on 194th Mile

Variation 13° 59' East.

80.00 Moved temporary corner 9 50 100 lks. North and set true corner. Marked stone 4 x 3 x 3 -194 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir post, 8 feet long and 6 in. square, beveled at
[fol. 482] top, 3 feet in ground, projecting 12 in. above mound, marked on the north, South, West and East sides -C- -N. M.- -1868- -194 M.- respectively.

From which point

A Fir tree, 16 in. dia. bears N. 20 W., 46 lks. dist.
A Fir tree, 20 in. dia. bears S. 38 E., 28 lks. dist.

East on 193d Mile

Variation 12° 59' East.

80.00 Moved temporary corner 6 28 100 lks. North and set true corner. Marked stone 8 x 5 x 4 -193 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Fir Post, 8 feet long, and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -N. M.- -1868- -193 M.- respectively.

Chains

From which point a

High Peak, bears N. 60 W.
Timbered Peak, bears North.
Mountain slide, bears N. 21 E., ¾ mile dist.
Volcanic ledge, bears N. 32 E., 1 mile dist.
Point of mountain ridge, bears N. 52 E.
Mountain Peak, bears N. 75 E.
Mountain Ridge, bears S. 30 E.
Mountain Peak, East of valley, bears S. 3 W.
Valley, bears S. 10 W.
Point of Ridge, bears S. 18 W.

East on 192nd Mile

Variation 12° 59′ East.

80.00 Moved temporary corner 3.06/100 lks. North and set true corner in dead timber. Marked stone 10 x 6 x 3 -192 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South West and East sides -C- -N. M.- -1868- -192 M.- respectively.
No natural objects near.

[fol. 483] Observations for asimuth at Astronomical Monument No. 7, on d Ursae Minoris Dec. 86° 36′ 44″ .3 RA 18. 14. 44. and 51 Cephei Dec. 87° 14′ 02″ .5 RA 6. 37. 56.5 Sept. 30th, 1868. Chronometer fast at mean noon, on Solar time

h
5.
m s
46. 21 with a loosing rate of 22 s per day.

Lower transit of d Ursae Minoris

	h	m	s
Oct. 1st A. M.—Chronometer time	11.	18.	43.
Upper transit of 51 Cephei	11.	41.	58.5
Chronometer intervals		23.	15.5
Chronometer rate			0.3
Reduction, to Sidereal time			3.8
Sidereal interval		23.	19.6
Interval between upper and lower transit		23.	12.5
			7.1

Chains

Computation

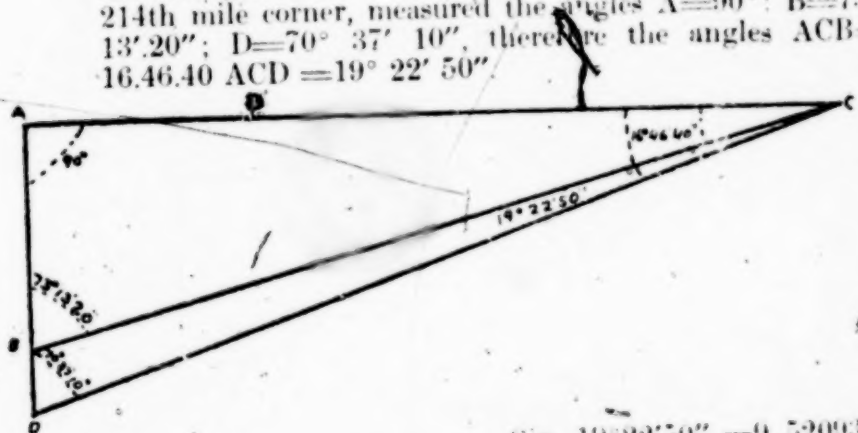
$\triangle 7^{s}$ .1=106″.5	Log.=2.02735	
Cos. d 86° 36′ 44″	=8.77300	Magnetic
Cos. d 87° 14′ 25″	=8.68356	Variation
Sec. ϕ 37°	=0.09765	14° East.
Cosec. 6° 09′ 13″	=0.96982	
Fast of true asimuth 3^{s}.56	0.55148	

West from Astronomical Monument No. 7 on 215th Mile

Variation 14° East.

1.70 Foot of ridge, bears South.
9.70 Top of ridge, bears S. S. W.
17.70 Foot of Ridge and enter valley, bears South.
19.70 Creek, 20 lks. wide, clear water, rapid current, course South. Willow brush along banks and beaver dams every few chains.
26.20 Indian trail, bears South.
32.70 Leave valley and enter 2nd rate Pine timber, bears S. S. E.
54.70 Offset from tangent to Parallel to 215th mile temporary
[fol. 484] corner.

Surface mostly level Prairie. Soil 2nd rate. It being impossible to measure the line up the mountain ridge, West of the 115th mile corner. I set flag on ridge, and formed the triangles ABC—ADC from a point 35 chs. West of 214th mile corner, measured the angles A=90°; B=73° 13′.20″; D=70° 37′ 10″, therefore the angles ACB=16.46.40 ACD =19° 22′ 50″.



Sin. 19°22′50″	=9.520930
Sin. 70°37′10″	=9.974666
Log. 70 chs.	=1.845098
188.99 chs.	2.298834

Chains

Sin. 16°46'40"=9.460387
Sin. 73°13'20"=9.981108
Log. 60 chs. =1.778151

199.01 chs. 2.298872

Large 198.99
Small 199.01 chs. chs.
Mean of computations 199.00

Therefore at 74 chs. on 117th mile, top of Myer ridge, nearly level on top.
Variation 14° East.

West on 217th Mile

Variation 14° East.

80.00 Offset from tangent to Parallel, to 217th mile temporary corner.
Surface broken.
Oct. 2nd. Measuring chain compared with standard and found correct.

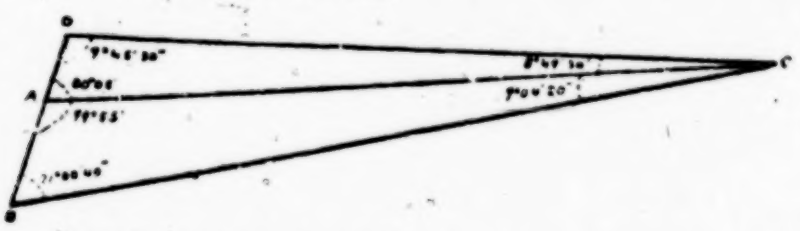
West on 218th Mile

Variation 13° 56' East.

14.30 High perpendicular cliff. The country West of this point is cut up by deep canons and high ridges, making it impossible to measure line with chain and this ridge being the only point that I could get a base that could be measured with sufficient accuracy for computing the distance. I found the triangle ABC-ADC and BCD, the point C is a lone
[tol. 485] Pine tree, standing near the West end of a high mountain ridge, and cannot be mistaken for any other. The above

M

named tree is 5° North of the line, or N 89.55 W. I run N. 10 E. 147 chs. 50 lks. formed the *the* triangle ABC measured angles A=90° 55'. B=71° 0'. 40". I formed the triangle ADC, the measured angles A=89° 05', D=94° 53' 30", hence we have the angles ACB=9° 04' 20" ACD=5° 49' 30" and angle DCB=14° 53' 50", AD=90 chs. and BD=23.75 chs.



In order to determine the length of the line A C = we have the following statements:

Chains

Sin. 9° 04'20" = 9.197775	In triangle A D C' we have
Sin. 71° 00'40" = 9.975699	
Log. 147.50 chs. = 2.168792	Sin. 5° 49'30" = 9.0064249
2.946716	Sin. 94° 05'30" = 9.9988916
	Log. 90 chs. 1.9542425
	2.9467092

In triangle D B C.

Angle C = 14° 53'50"	9.4100783
Angle B = 71° 00'40" =	9.9756991
Side B D. 237.5 chs. =	2.3756636
Side D C 873.54 chs.	2.9612844

Point D West of Point A	15.63 chs.
	889.17
Difference between measurement on line A C and D C	4.65
	884.52

	Mean
1st comp'n	884.54
2nd do.	884.52
3rd do.	884.52
	884.52

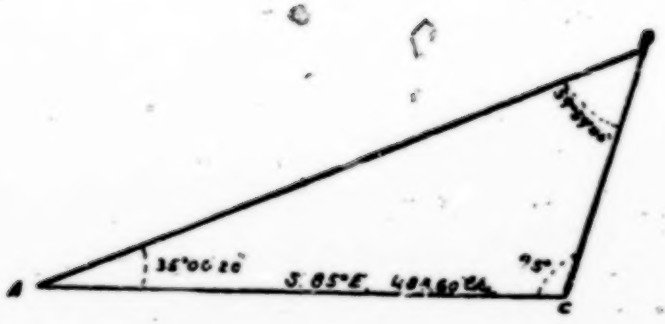
[fol. 486]

M. chs. lks.

Point C or tree on bluff is 11 04 52 6.10 West of point A, in triangle, or 18 chs. 82 6 10.1ks. on 129th mile. Tangent 147 lks. South of line, Parallel is 28 lks. North of tree, or point C. The North point of ridge is 50 lks. North. The South point 50 lks. South of point D and B in triangle. Perpendicular bluffs on each side. In order to determine the point where the boundary line crosses the Rio Navajoe, from point on the bluff, on the West side of the stream I took the following bearings of the North and South points of the mountain ridge, where the triangulation was made from a point on bluff on the South point of the ridge, bearing S. 85° E., North point bears N. 69° 59' 40" E. Therefore I have the triangle A B C, with the angles A = 25° 00' 20", B = 59° 59' 40" and C = 95°

Sin. 25° 00'20" = 9.6260386	
Sin. 59° 59'40" = 9.9375063	
chs.	
Log. 238.50 = 2.3774884	
488.60 chs.	2.6889561

Chains



South point of bluff being S. 19 W. 99 chs. 50 lks. from point 14 chs. 30 lks. West of 217th mile corner, is 89 chs. 12 lks. South of line, and 30 chs. 02 lks. further west than 217th mile corner. S. 85 E., 488 chs. 60 lks. + 42 Lat. 61 chs. 468 DEP. 75 chs. + 30.02 = 516.77 lks. West of the 217th mile cornerser 36 chs. 77 lks. further West than the place for the 223d mile corner, 89 chs. 12 lks. + 42 chs. 61 lks. = 46 chs. 51 lks. + 28 lks. for distance Northwof the Parallel = 46.23 lks. South of Parallel, thence N. 2 E. 46.54 chs. to a point on Parallel 35 chs. 14 lks. West of 223d mile. Bluff of the Rio Navajoe, 100 lks. East thence West on 224 mile.

Variation 13° 56' East

35.70 Indian trail, bears North.

35.80 Set a temporary witness stone monument.

39.50 Rio Navajoe, 100 lks. wide, 18 in. deep, stony bottom, rapid current, course N. W.

41.00 Foot of nearly perpendicular cliff, 4 feet high, bears N. W.

[fol. 187] It being impossible to measure further with chain on line on account of the number of deep canons, and abrupt ridges. Tree on line on bluff, 19 lks. North of Parallel. I here built temporary mound of earth and stone. I found it impossible to measure line with chain from this point to valley, on account of the precipitous character of the ridges and deep canons. I, from a point on ridge, on tangent, caused a flag to be set on a small elevation, near the valley, and at that point, I formed the triangle A B C and A D C, measured angles A = 90 B 77.53.05, D 71.40.40, hence the angle A C B = 12.26.55; A D C 18.19.20, measured sides A B = 40, A D = 60, hence we have

Sin. 12°26'55"	= 9.339576	Sin. 18°19'20"	= 9.497428
Sin. 77°33"	= 9.989672	Sin. 71°40'40"	= 9.977405
Log. 40 chs.	= 1.602060	Log. 60 chs.	= 1.778151
181.20 chs.	2.258156	181.19 chs.	2.258128

Chains

West on 231st Mile

Variation 14° East.

43.00 Enter San Juan valley, bears S. W.

78.00 Bend in Rio San Juan, clear water, rapid current, stony bottom, course S. W.

Offset from tangent to Parallel and set temporary witness corner. Offset South 5 chs. in order to measure line, thence West 20 chs. offset back to line, on left bank of river.

Surface except valley, mountainous, cut up by deep canons, covered with scrub Pine timber.

Soil 3d rate.

West on 232nd Mile

Variation 14° East.

20.00 Leave bend in Rio San Juan, clear water, rapid current, stony bottom, course W. S. W.

63.00 Bend in Rio San Juan, average depth about 2 feet, course [fol. 488] W. S. W.

71.50 Sandbar, in river.

73.50 Leave sand bar and enter water, course W. N. W.

75.00 Sand bar, bears W. N. W.

80.00 Place for temporary 232nd mile corner on sand bar, and impracticai — establish it. Subject to inundation, to the depoth of 10 feet. Bottom also subject to inundation, to the depoth of 6 feet.

Surface on South side of river mountainous, on the North side, valley is about ¾ of a mile wide.

Soil in valley 2nd rate.

West on 233d Mile

Variation 14° East.

31.75 Leave sand bar, and bed of Rio San Juan, course W. N. W.

79.00 Canon, bears N. E.

Chains

79.50 Dry bed of Creek. 5 lks. wide, stony bottom, course N. E.
80.00 Offset from tangent to Parallel to 223d mile temporary corner, in canon.
Surface broken.
Soil 3d rate.

West on 234th Mile

Variation 13° East.
60.00 Top of bluff, descending into canon, bears N. N. E.
72.00 Dry bed of creek, stony bottom, course N. N. E.
80.00 Place for 234th mile corner, on side of bluff, impossible to establish it.
Surface mountainous, covered with scrub Pine timber.
Soil 3d rate.

West on 235th Mile

Variation 14° East.
12.00 Top of bluff, bears North.
21.00 Peak on mountain ridge, bears N. 37¾ W
28.50 Dry bed of creek, sandy bottom, course North.
80.00 Offset from tangent to Parallel to 235th mile temporary corner.
Surface mountainous and stony, covered with scattering scrub Pine timber.
Soil 3d rate.

[fol. 489] Oct. 7th. Measuring chain compared with standard and found correct.

It being impossible to measure on line with chain on account of the broken condition of the surface, I offset North, forming a right angle with tangent, 68 chs. thence West on Parallel with tangent 4 M. 40 chs., offset South at right angles to tangent, 68 chs. to tangent.
Surface on offset broken, also along side of mountain, covered with scrub, Pine and Cedar timber.
Soil 3d rate.

West on 240th Mile

Variation 14° East.
61.00 Leave mountains and enter San Juan Valley bears S. W.
A gradual descent from bluff to river.

Chains

80.00 Offset from tangent to Parallel, to 240th mile, temporary corner.
Surface except bottom, mountainous, covered with scrub cedar and pine timber and Oak brush.
Soil 2nd rate.

West on 241st Mile

Variation 14° East.
68.00 Ente: scattering 2nd rate cottonwood timber, bears S. W.
74.00 Rio San Juan, course S. S. W.
78.50 Leave Rio San Juan, clear water, about 30 in. deep, rapid current, stony bottom, low banks, course S. S. W.
80.00 Place for 241st mile corner, on side of bluff, impossible to establish it.
Surface on east side of river, a gradual descent to it.
Soil 2nd rate.

West on 242nd Mile

Variation 14° East.
4.00 Top of bluff bears S. W.
9.00 Indian trail, bears S. S. W.
19.00 Descend into valley, bears South.
21.70 Offset from tangent to Parallel, to a point 410 lks. South of Astronomical Monument No. 8 which is represented by a granite stone 6 feet long x 10 x 11 in. marked on the North, South, West and East sides "Colorado" "New Mexico" "1868" "37 N. L." respectively.
Dug pits 2 feet square and 18 in. deep on the North, South,
[fol. 490] West and East sides.
I therefore make a correction of 15 8/10 lks. per mile North. Thence

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East on 242nd Mile

Variation 13° 53′ East.
21.70 Place for 241st mile corner on side of bluff, impossible to establish it.

East on 241st Mile

Variation 13° 53′ East.
80.00 Moved temporary corner 3.90 2/10 chs. North and set true corner to 240th mile. Marked stone 5 x 5 x 4 -240 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and

Chains

West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 16 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -240 M.- respectively.
No natural objects near.

East on 240th Mile

Variation 13° 53′ East.
Impossible to establish the 239th-238-237- and 236 mile corners.

Offset from 235th mile temporary corner 3.14 8/10 chs. North, and set true corner. Set a sand stone 5 x 4 x 2 marked on the North, South, West and East sides -C.- -N. M.- -1868- -235 M.- *respectfully*. Dug pits 10 lks. East and West from stone, 2 feet square and 18 in. deep.

From which point

A sand stone 7 x 6 x 3 feet bears S. 45 E., 9 lks. dist.

East on 234th Mile

Variation 12° 53′ East.

80.00 Moved temporary corner 2.99 chs. North and set true corner to 233d mile. Marked stone 4 x 3 x 2—and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 8 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -234 M.- respectively.

[fol. 491] No natural objects near.

East on 233d Mile

Variation 12° 53′ East.

80.00 Place for 232nd mile corner on sand bar in Rio San Juan, and impossible to establish it.

From which point

Point of ridge bears N. 20 W., 3 miles dist.
Point of ridge, bears S. 5 E., 40 chs. dist.

Chains

East on 232nd Mile

Variation 13° 53' East.

80.00 Place for corner in river.

82.00 Moved temporary witness corner 252 9/10 lks. North on 232nd mile, and set true corner. Built conical mound of earth and stone 4 feet high. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 16 x 10, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868-. No natural objects near.

East on 231st Mile

Variation 13° 53' E.

Impossible to establish the 230-229-228-227-226- and 225th mile corners.

East on 229th Mile

Variation 13° 49' East.

80.00 Moved temporary witness corner on 224th mile, 2 chs. 19 lks. North, and set true witness corner. Built conical mound of earth, 4 feet high. Set sand stone 30 x 12 x 4 marked on the North -C.- South -N. M.- East -37 N. L.- West -1868-.

The above corner is on a high ridge, about 1½ miles South of Rio San Juan.

From which point

A Pine tree, 20 in. dia. bears South 2.11 lks.
No other tree near.

From Witness Corner 35.80 lks West on 224th Mile

Variation 13° 59' East.

Moved temporary witness corner 1.29 lks. North, and set true witness corner. Built conical mound of earth, 4 feet
[fol. 492] high. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 20 x 10, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -37 N. L.-

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East on 224th Mile

Variation 13° 49' East.

Impossible to establish 223-222-221 and 220 mile corners.

Chains

Moved 217th mile temporary corner 40 9/10 lks. North and set true corner. Marked stone 5 x 4 x 4 -217 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 23 x 10 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -217 M.- respectively.
No natural objects near.

Impossible to establish 216th mile corner.

Moved 215th mile temporary corner 10 5/10 lks. North, and set true corner. Marked stone 6 x 5 x 3 -215 M.- and deposited it 3½ feet in earth. Built conical mound of earth 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -215 M.-

From which point

A Pine tree, 20 in. dia., bears N. 15 W., 40 lks. dist.
A Pine tree, 16 in. dia. bears S 10 E., 25 lks. dist.

Observations for Asimuth, Oct. 10th A. M. at Astronomical Monument No. 9 on d Ursæ Minoris R. A. h 18. m 14. s 32.2 Dec. 86° 36′ 44″ and 51 Cephei R. A. h 6. m 37. s 46 Dec. 87° 14′ 03″ .5. Chronometer fast at mean noon, on Solar time h 5. m 46. s 21, with a loosing rate of 20 per day.

[fol. 493] Chron. time of Obs'n of d Ursæ Minoris, A. M. lower transit ..... h 10. m 44. s 25.

Chron. time of Obs. of 51 Cephei, upper transit ..... h 10. m 07. s 40.

Chains

Chronometer interval	..	23. 45
Chronometer rate	.. ..	0.3
Reduction to Sidereal time	.. ..	3.8
	23.	19 1
	23.	07
		.12

$\triangle 12^{s} = 18''.0$ Log.

Cos.d 86° 36′ 44″ =	8.77300	
Cos.d 87° 14′ 03″ =	8.68366	
37° =	0.09765	Va. 14° East.
Cosec. 6° 09′ =	0.96982	
Error 6″.6	0.77940	

West from Astronomical Monument No 8

21.70 lks. West on 242nd Mile

Variation 14° East.

26.00 Dry bed of Creek, 10 lks. wide, high banks, stony bottom. Course S. S. E.

31.00 Top of Hill, or ridge, bears S. S. E., and enter scrub pinion Pine and Cedar timber, bears S. S. E.

58.00 Leave timber, and enter sage brush Prairie bears South.

80.00 Offset from tangent to Parallel, to 242nd mile corner.
Marked stone 5 x 5 x 4 -242M.- and deposited it 3½ feet in earth. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -242M.- respectively.
No natural objects near.
Surface level, except 1st 30 chs.
Soil 2nd rate.

[fol. 494] West on 243d Mile

Variation 14° East

74.50 Dry bed of Creek, 50 lks. wide, high banks, gravelly bottom, course South.

80.00 Offset from tangent to Parallel to 243d mile corner.

Chains

Marked stone 4 x 4 ⅜ -243M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred cedar post, 8 feet long, and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -243M.- respectively.

From which point a

Conical Peak, bears N. 7 E.
High Point, on mountain ridge bears N. 58 E.
A large tree, on conical peak, bears S. 45 E.
Point of ridge, bears South.
Point of Ridge, bears S. 40 W., 1½ miles dist.
Surface gently rolling, covered with sage brush.
Soil 2nd rate, gravelly.

West on 244th Mile

Variation 14° 02' East.

36.50 Dry bed of Creek, high banks, sand and gravelly bottom, course S. S. E.

67.25 Indian trail, bears N. W.

80.00 Offset from tangent to Parallel, to 244th mile corner. Marked stone 10 x 4 x 4 -244M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred cedar post, 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- 244 M.- respectively.

From which point, a

Point of Ridge, bears N. 79 W.
Point of ridge, bears N. 12 W., 10 miles dist.
Conical Peak, bears N. 13 E.
Mountain Peak, bears N. 36 E., 35 miles dist.
Mountain Peak, bears N. 82 E., 45 miles dist.
Point of mountain ridge, bears S. 54 E., 12 M. dist.
Surface gently rolling, covered with sage brush.
[fol. 495] Soil 2nd rate.

Chains

West on 245th Mile

Variation 14° 03′ East.

80.00 Offset from tangent to Parallel to 245th mile corner. Marked stone 8 x 6 x 3 245M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North C. South N. M. West 1868 *South* 245M.
No natural objects near.
Surface gently rolling.
Soil 2nd rate.

West on 246th Mile

Variation 14° 03′ East.

80.00 Offset from tangent to Parallel, to 246th mile corner. Marked stone 6 x 4 x 3 246M. and deposited it 3½ feet in ground. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North C. South N. M. West 1868 East 246M.
No natural objects near.
Surface gently rolling.
Soil 2nd rate.

West on 247th Mile

Variation 14° 03′ East.

36.50 Enter scattering scrub Pine and Cedar timber, bears South.
58.00 Top of ridge, 400 feet above valley, bears N. W.
80.00 Offset from tangent to Parallel, to 247th mile corner. Marked stone 6 x 4 x 3 247M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 40 x 10 x 4, projecting 8 in. above mound, marked on the North C. South N. M. West 1868 East 247M.
No natural objects near.
Surface 1st half, level 2nd half broken.
Soil 2nd rate.

Chains

[fol. 496]

West on 248th Mile

Variation 14° 03′ East.

14.00 Descend into valley, 150 feet deep.

47.00 Top of bluff, on west side of valley, bears N. E.

74.00 Leave scrub Pine and cedar timber, bears North.

80.00 Offset from tangent to Parallel, to 248th mile corner. Marked stone 6 x 5 x 3 248M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 19 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North C. South N. M. West 1868 East 248M.
No natural objects near.
Surface broken.
Soil 3d rate.

West on 249th Mile

Variation 14° 03′ East.

7.00 Enter scattering pinion, Pine and Cedar timber, bears N. E and S. W.

80.00 Offset from tangent to Parallel, to 249th mile corner. Marked stone 5 x 5 x 3 249M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 10 x 12 projecting 8 in. above mound, marked on the North C. South N. M. West 1868 East 249M.
No natural objects near.
Surface mountainous, covered with scrub Pine timber.
Soil 3d rate.
Oct. 10th. Measuring chain compared with standard and found correct.

West on 250th Mile

Variation 14° 03′ East.

8.50 Perpendicular bluff, bears S. W.

23.50 Point of perpendicular sand stone bluff, about 1200 feet above valley, and 40 feet perpendicular.

58.00 Leave scattering pinion Pine and Cedar timber and enter valley of the los Pinos, bear North.

80.00 Offset from tangent to Parallel to 250th mile corner.

Chains

Marked stone 5 x 5 x 4 250M. and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over
[fol. 497] same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone, 30 x 8 x 6, projecting 8 in. above mound, marked on the North C. South N. M. West 1868 East 250M.
From which point.
Point of bluff, bears N. 17 W.
Conical Peak bears S. 22 W.
Saddle Peak, bears N. 80 W.
Surface broken except valley, which is broken.
Soil in valley 2nd rate.
Balance 3d rate.

West on 251st Mile

Variation 14° 03′ East.

50.50 Dry bed of Creek, 40 lks. wide; rocky bottom, course S. S. E.

59.00 Enter valley, bears S. S. E.

75.80 Rio los Pinos 100 lks. wide, clear water, about 18 in. deep, rapid current, stony bottom; banks on East side high on West side low and stony. Course S. S. E.

79.40 Top of bluff on west side of river, bears S. S. E.

80.30 Offset from tangent to Parallel, to 251st mile corner. Marked a stone 8 x 6 x 4 251M and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 38 x 12 x 5, projecting 8 in. above mound, marked on the North C. South N. M. West 1868 East 251M.
From which point a
Conical mound, bears N. 72 W.
Snowy peak, bears N. 3 W.
Conical peak, on mountain, bears N. 7 E., 30 M. dist.
Conical peak, on mountain bears N. 17 E.
Conical peak, bears S. 32 E., 1 mile dist.
Surface rolling.
Soil 2nd rate.

West on 252nd Mile

Variation 14° 03′ East.

13.00 Leave sage brush prairie, bears South.

15.00 Enter scattering 2nd rate scrub, Pine and Cedar timber with thick undergrowth of sage, oak and other brush, bears South and ascend hill.

80.00 Offset from tangent to Parallel, to 252nd mile corner.

Chains

& Marked stone 12 x 6 x 4 252 M. and deposited it 3½ feet
[fol. 498] in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 26 x 8 x 7, projecting 8 in. above mound marked on the North C. South N. M. West 1868 East 252M.
No natural objects near.
Surface mountainous and stony, covered with a thick undergrowth of scrub Pine and Cedar brush. Soil 3d rate.
Oct. 11th. Measuring chain compared with standard and found correct.

West on 253d Mile

Variation 14° 03′ East.
80.00 Offset from tangent to Parallel, to 253d mile corner. Marked stone 10 x 6 x 3 253M. and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 12 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides C. N. M. 1868 253M. respectively.
From which point a
½ conical peak, bears N. 4 W., 25 miles dist.
Surface mountainous, covered with scrub Pine and Cedar timber.
Soil 3d rate.

West on 254th Mile

Variation 14° 03′ East.
59.00 Canon, 50 lks. wide, 800 feet deep, bears N. W.
80.00 Offset from tangent to Parallel to 254th mile corner. Marked stone 10 x 6 x 4 254M. and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 10 x 8, projecting 8 in. above mound, marked on the North, South, East and West sides C. N. M. 254M. 1868 respectively.
No natural objects near.
Surface mountainous covered with thick brush.
Soil 3d rate.

West on 255th Mile

Variation 14° 03′ East.
67.00 Perpendicular sand stone bluff, 70 feet high, bears N. W.
78.00 Enter valley, bears N. E.

Chains

80.00 Offset from tangent to Parallel to 255th mile corner.
[fol. 499] Marked stone 6 x 4 x 3 -255 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -255 M.- respectively.
No natural objects near.
Surface mountainous, covered with scrub, pinion Pine and Cedar brush.
Soil 3d rate.

West on 256th Mile

Variation 14° 03′ East.
77.50 Creek, 15 lks. wide, very little water, course S. S. W.
80.00 Offset from tangent to Parallel to 256th mile corner. Marked stone 4 x 3 x 2 -256 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet sqr., and 18 in. deep. Set sand stone 30 x 12 x 4, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -256 M.- respectively.
No natural objects near.
Surface rolling, mostly covered with sage brush.
Soil 3d rate.

West on 257th Mile

Variation 14° 03′ East.
2.00 Enter scrub Pine and Cedar timber and leave valley, bears S. W.
65.00 Creek, 10 lks. wide, very little water, high banks, gravelly bottom, course S. S. W.
80.00 Offset from tangent to Parallel, to 257th mile corner. Marked stone 8 x 6 x 4 -257 M.- and deposited it 3½ feet in earth. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 10 x 10 projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -257 M.-
No natural objects near.
Surface broken and stony covered with scrub cedar, pine and oak timber and sage brush.
Soil 3d rate.
[fol. 500] Oct. 12th. Measuring chain compared with standard and found correct.

West on 258th Mile

Chains

Variation 14° 03' East.

6.00 Top of sand stone bluff, bears South.

10.50 Creek, 20 lks. wide, very little water, high banks, gravelly bottom, course South.

16.00 Top of sand stone bluff, on West side of Creek, bears South.

80.00 Offset from tangent to Parallel to 258th mile corner. Marked stone 6 x 5 x 4 -258 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 12 x 12, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -258 M.- respectively.

No natural objects near.

Surface broken and stony, covered with scrub Pine and timber.

Soil 3d rate.

West on 259th Mile

Variation 14° 03' East.

1.00 Perpendicular sand stone bluff, 15 feet high, bears S. S. W.

3.00 Creek, 8 lks. wide, clear water, rapid current, sandy bottom, course E. S. E.

25.00 Leave valley, about 3 chs. wide, bears S. E. and East.

80.00 Offset from tangent to Parallel to 259th mile corner. A sand stone 6 x 5 x 4 feet, projecting 2 feet above ground, marked on the North, South, West and East sides -C.- -N. M.- -1868- -259 M.- and on top + respectively.

No mound, no pits and no natural objects near.

Surface broken.

Soil 2nd rate.

West on 260th Mile

Variation 14° 03' East.

80.00 Offset from tangent to Parallel to 260th mile corner. Marked stone 6 x 6 x 3 -260 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 10 x 5, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -260 M.- respectively.

No natural objects near.

Surface broken, covered with scrub pinion Pine and Cedar brush.

Soil 3d rate.

Chains

West on 261st Mile

Variation 14° 03′ East.

80.00 Offset from tangent to Parallel to 261st mile corner. Marked stone 8 x 6 x 4 -261 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long, and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -261 M.- respectively.
No natural objects near.
Surface broken, covered with pinion Pine and cedar timber.
Soil 3d rate.

West on 262nd Mile

Variation 14° 04′ East.

58.00 Valley, 1 chain wide, bears S. S. W.

80.00 Offset from tangent to Parallel to 262nd mile corner, which is identified by a sand stone 8 feet square, projecting 2 feet above earth, marked on the North, South, West and East sides -C.- -N. M.- -1868- -262 M.- respectively.
No mounds, No pits, No natural objects near.
Surface broken, covered with pinion Pine timber and brush.
Soil 3d rate.
Oct. 12th. Measuring chain compared with standard and found correct.

West on 263 Mile

Variation 14° 04′ East.

80.00 Offset from tangent to Parallel, to 263d mile corner. Marked stone 8 x 6 x 3 -263 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 29 x 15 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -263 M.- respectively.
No natural objects near.
[fol. 502] Surface broken.
Soil 3d rate.

Chains

West on 264th Mile

Variation 14° 03′ East.

20.00 Top of high ridge and enter canon, bears N. N. E.

37.00 Leave canon, bears N. W.

80.00 Offset from tangent to Parallel, to 264th mile corner. Marked stone 6 x 4 x 4 -264 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 40 x 12 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -264 M.- respectively.

Soil 3d rate.

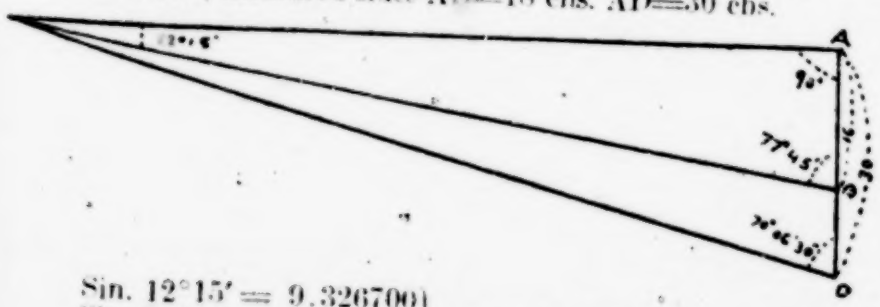
No natural objects near.

Surface mountainous, covered with pinion pine and Cedar brush.

West on 265th Mile

Variation 14° 03′ East.

65.66 To perpendicular bluff, 50 feet high, bears South. A deep canon, directly West. It being impossible to measure with chain on line, I set flag in valley on line and one on top of bluff, and from flag in valley, I found the triangle ABC and ADC, with measured angles A=90, B=77.45, D=70.06.30, measured sides AB=18 chs. AD=30 chs.



Sin. 12°15′ =	9.326700	Sin. 19°53′30″ =	9.531789
Sin. 77°45′ =	9.989997	Sin. 70°06′30″ =	9.973284
Log. 18 chs. =	1.255273	Log. 30 chs. =	1.477121
chs		Chs	
82.90 lks.	1.918570	82.91 lks.	1.918616
chs			

Mean 82.90½ lks.

Impossible to establish 265th mile corner on account of nearly perpendicular bluff.

Oct 13th Measuring chain compared with standard and found correct.

[fol. 503] West on 266th Mile

Chains

Variation 7½° 03' East.
In order to determine the Point, where the line crossed the Rio los Animas East from point A or 67.90 chs. West on 266th mile.

2.00 Indian trail bears South.

9.00 Enter low bottom, bears S. S. W.

16.90 Rio los Animas, 3 chs. wide, about 2½ feet deep, clear water, rapid current, about 6 miles per hour, stony bottom, banks on East side low, course S. S. E., general course South.

67.75 Offset from tangent 4.19 chs. to Parallel at Astronomical Monument No. 9 which is represented by a sand stone 2½x3 feet, projecting 3 feet above earth, marked on the North "Colorado" South "New Mexico" West "1868" East "37NL" and over top of stone there is a deep cross, cut with a chisel. Dug pits on the North, South, East and West sides.

From which
Conical Peak bears N 13½ E. about 1½ M dist.
Point of perpendicular sand stone bluff down Rio Los Animas, bears S. 7 E., 3 M. dist.
Animas valley bears S. 2 W.
Observation for Asimuth Oct. 15th A. M. on d Ursae

	h	m	s				
Minoris RA	18.	14.	49.8	DEC. 86°	36'	44"	and 51
	h	m	s				
Cephei RVA	6.	38.	19.3	Dec. 87°	14'	08".7.	Chro-

nometer fast at mean noon on Solar time h m s 45. 39 with a loosing rate of 16 per day.

Chron. time of Obs. 'n of d Ursae			
Minoris A. M. lower transit	10.	24.	32
Chron. time of Obs.'n of 51 Cephei.			
upper transit	10.	47.	49
Chronometer interval		23.	17
Chronometer rate			0.3
Reduction to Sidereal time			3.8
Sidereal interval		20.	21.1

Chains

[fol. 504] Interval of time between upper and lower transit,) 23. 29.5

) 8.4

—Computation—

$\Delta = 8.\ 4 \times 15 = 126^{s}$ Log.

Cos. d 86° 36′ 44″	= 2.10037	Va. 14° 04′ East.
Cos. d 87° 14′ 08″	= 8.77300	
Sec ϕ 37°	= 8.68366	
Cosec. 6° 09′	= 0.09765	
	= 0.96982	
Error of Asimuth 4″.2 East.	0.62450	

West from Astronomical monument No. 9 on 266th mile, which is 67.75 lks. West of place for 265th mile corner. Va. 14° 04′ East.

1.00 Bluff, bears North and South.

6.00 Top of bluff, bears South.

13.25 Offset from tangent to Parallel, to 266th mile corner. Marked stone 66 x 5 x 4 -266 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 8 x 4, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -266 M. respectively.
No natural objects near.
Surface broken.
Soil 3d rate.

West on 267th Mile

Variation 14° 04′ East.

20.00 Foot of high ridge, bears South.

45.00 Top of ridge, bears S. S. E.

80.00 Offset from tangent to Parallel to 267th mile corner. Marked stone 6 x 4 x 4, and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug Pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 12 x 8, projecting 8 in. about mound, marked on the North -C.- South -N. M.- West -1868- East -267 M.-
No natural objects near.
Surface broken.
Soil 3d rate.

[fol. 505] West on 268th Mile

Chains

Variation 14° 04' East.

38.50 Dry bed of Creek, 20 lks. wide, sandy bottom, course N. N. W., A perpendicular sand stone rock, a little South of line, from underneath flows a spring of pure water, which sinks again in the sand.

49.00 Perpendicular sand stone bluff, bears South.

80.00 Offset from tangent to Parallel, to 268th mile corner. Marked stone 5 x 5 x 4 -268 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24 x 10 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -268 M.- respectively. No natural objects near.
Surface broken, covered with cedar and pine timber and oak brush.
Soil 3d rate.
Oct. 14th. Measuring chain compared with standard and found correct.

West on 269th Mile

Variation 14° 04' East.

11.00 Top of bluff 50 feet high and leave timber bears South.

20.00 Dry bed of Creek, 20 lks. wide, sandy bottom, course S. S. E.

48.00 Enter scrub Pine, timber, bears South.

80.00 Offset from tangent to Parallel to 269th mile corner. Marked stone 8 x 4 x 3 -269 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -269 M. respectively. No natural objects near.
Surface broken.
Soil 3d rate.

West on 270th Mile

Variation 14° 04' East.

30.50 Top of ridge bears South.
Conical Peak, bears N. 67. 16 W.
A. ½ conical peak bears N. 23 E.

80.00 Offset from tangent to Parallel to 270th mile corner. Marked stone 5 x 5 x 4 -270 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over

Chains

[fol. 506] same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 16 x 10, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -270 M.-
No natural objects near.
Surface broken, covered with scrub Pine and Cedar timber.
Soil 3d rate.

West on 271st Mile

Variation 14° 04′ East.

80.00 Offset from tangent to Parallel to 271st mile corner. Marked stone 4 x 4 x 3 -271 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 12 x 6, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -271 M.- respectively.
No natural objects near.
Surface broken, covered with scrub pinion Pine and cedar timber and thick Oak and Sage Brush.
Soil 3d.

West on 272nd Mile

Variation 14° 04′ East.

80.00 Offset from tangent to Parallel, to 272nd mile corner. Marked stone 4 x 4 x 3 -272 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 18 x 8 x 8, projecting 6 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -272 M.- respectfully.
No natural objects near.
Surface broken, covered with scrub pine and Cedar timber.
Soil 3d rate.

West on 273d Mile

Variation 14° 04′ East.

80.00 Offset from tangent to Parallel, to 273d mile corner. Marked stone 5 x 4 x 4 -273 M.- and deposited it 3½ feet in earth, Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post 8

Chains

feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above bound, marked on the
[Fol. 507] North, South, West and East sides -C.- -N. M.- -1868- -273 M.- respectively.
No natural objects near.

West on 274th Mile

Variation 14° 04' East.

80.00 Offset from tangent to Parallel to 274th mile corner. Marked stone 5x4x3 -274 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -274 M.-
From which point
West peak of mountain bears N. 8 W.
Conical peak, bears N. 60 E.
Surface broken, covered with 3d rate, cedar and Pine timber.
Soil 2nd rate.
Oct. 15. Measuring chain compared with standard and found correct.

West on 275th Mile

Variation 14° 04' East.

39.00 Perpendicular sand stone bluff, about 20 feet high, bears S. S. E.

80.00 Offset from tangent to Parallel to 275th mile corner, which is represented by a cedar tree, 10 in. dia. barked square etc. marked on the North, South, West and East sides -C.- -N. M.- -1868- 275 M. respectively.
No natural objects near.
Surface broken, covered with scrub cedar and Pine timber.
Soil 3d rate.

West on 276th Mile

Variation 14° 04' East.

10.00 Leave Cedar and Pine timber and enter sage brush prairie, bears N. N. W.

80.00 Offset from tangent to Parallel to 276th mile corner. Deposited charred block 3½ feet in earth. Built conical

Chains

mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar 8 feet long and 6 in. square, [fol. 508] bevoled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C- South -N. M.- West -1868- East -276 M.-
No natural objects near.
Surface gently rolling Prairie.
Soil 3d rate.

West on 277th Mile

Variation 14° 04' East.
0.15 Indian trail, bears W. S. W.
10.00 Enter scattering 3d rate cedar and pine timber, bears W. N. W.
80.00 Offset from tangent to Parallel, to 277th mile corner. Deposited charred block 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Cedar post, 8 feet long and — in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North -C- South -N. M.- West -1868- East -277 M.-
From which point a
Mountain Peak, bears N. 3° W.
Small Peak near Rio la Platte, bears N. 60 W.
Surface rolling.
Soil 2nd rate.

West on 278th Mile

Variation 14° 04' East.
30.00 Leave scattering 2nd rate Cedar and Pine timber and enter sage brush prairie, bears N. N. W. and S. E.
80.00 Offset from tangent to Parallel, to 278th mile corner. Marked stone 6x5x2 -278- M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x12x10, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -278 M.-
No natural objects near.
Surface broken.
Soil 2d rate.

Chains

West on 279th Mile

Variation 14° 04' East.

5.00 Top of ridge, bears S. W.

41.80 Large sand stone boulder on top of ridge 30 feet square [fol. 509] and 10 feet high

69.19 Indian trail, bears N. N. E.

80.00 Offset from tangent to Parallel to 279th mile corner. Marked stone 6x4x4 -279 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x8x8, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -279 M.-
No natural objects near.
Surface broken, mostly covered with scrub Pine and Cedar timber.
Soil 3d rate.

West on 280th Mile

Variation 14° 04' East.

12.00 Dry bed of Creek, 50 lks. wide, sandy bed, course W. S. W
Note: A bed of bituminous coal crops out on each side of Creek about 4 feet thick.

28.00 Top of sand stone bluff, 70 feet high, bears E. S. E.

35.00 Creek, 40 lks. wide (alkali) about ½ in. deep, sandy bottom, course S. S. E.

37.00 Leave valley, and ascend hill, bears S. E.

80.00 Offset from tangent to Parallel to 280th mile corner, which is identified by a large sand stone, 4 feet square and 18 in. high, marked on the North -C.- South -N. M.- West -1868- East -280 M.-
No natural objects near.
Surface broken, covered with scrub cedar and pine timber.
Soil 3d rate.

West on 281st Mile

Variation 14° 04' East.

2.00 Large beds of bituminous coal, from appearance it indicates a vein 30 feet thick, and coal is exposed over a space of about 80 acres.

50.00 Sand stone bluff about 200 feet high bears South.

55.00 Enter valley, bears South.

64.50 Dry bed of creek, 60 lks. wide, sandy bottom, high banks course S. S. E.

73.00 Dry bed of creek, 50 lks. wide, cut into valley about 10 feet, muddy bottom, course S. E.

Chains

80.00 Offset from tangent to Parallel to 281st mile corner.
[fol. 510] Marked stone 6x6x4 -281 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 24x12x6, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -281 M.-

From which point a
Point of sand stone bluff, bears N. 35 E.
Point of sand stone bluff, bears N. 30 E.
Mountains, bears N. 5 E.
Surface broken, on the hills nothing but gravel.
Soil 3d rate.
Oct. 16 Measuring chain compared with standard and found correct.

West on 282nd Mile

Variation 14° 04′ East.
80.00 Offset from tangent to Parallel to 282nd mile corner, on side of hill; which descends to the North. Marked stone 8x6x3 -282 M.- and deposited it 3½ feet in earth Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 34x14x12, projecting 8 in. above mound, marked on the North -C- South -N. M.- West -1868- East -282 M.-
No natural objects near.
Surface broken, covered with scrub Pine and Cedar timber.
Soil 3d rate.

West on 283d Mile

Variation 14° 04′ East.
40.00 Leave scattering Pine and Cedar timber and enter sage brush prairie, bears South.
71.24 Indian trail, bears S. S. W.
80.00 Offset from tangent to Parallel to 283d mile corner on top of ridge. Marked stone 5x5x4 -283 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x14x10, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -283 M.-
No natural objects near.
Surface rolling.
Soil 2nd rate.

[fol. 511] West on 284th Mile

Chains

Variation 14° 04′ East.
16.00 Enter valley, bears South.
19.50 Indian trail, bears South.
27.25 Rio la Platte, 50 lks. wide, clear water, 24 in. deep, rapid current, gravelly and rocky bottom, course South.
65.00 Indian trail, bears South.
66.00 Leave valley, bears South.
West Peak, Sierra la Platte, bears N. 8½ E.
Snowy Peak, bears N. 12.35 E.
Peak, bears N. 19¾ E.
½ conical peak, bears N. 35 E.
Canyon, where trail comes down bears N. 13½ E.
Rio la Platte valley, bears S. 16½ E.
80 60′ Offset from tangent to Parallel to 284th mile corner.
Marked stone 5x5x2 -284 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North -C- South -N. M.- West -1868- East -284 M.-
No natural objects near.
Surface gentle rolling.
Soil 2nd rate.

West on 285th Mile

Variation 14° 04′ East
10.00 Dry bed of Creek, 100 lks. wide, stony bottom, course S. E.
16.50 Leave valley, and enter scrub Pine and Cedar timber, bears S. E.
80.00 Offset from tangent to Parallel, to 285th mile corner.
Marked stone 8x6x4 -285 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x10x8, projecting 8 in. above mound, marked on the North -C- South -N. M.- West -1868- East -285 M.-
No natural objects near.
Surface broken, mostly covered with 3d rate Pine and Cedar timber and sand stone rock.
Soil 3d rate.

West on 286th Mile

Chains.

Variation 14° 04′ East.

60.00 Canon, bears S. E. Set flag on opposite side of canon, formed [fol. 512] the right angle triangle ABC measured the angles A = 90 B = 71.28 Side AB = 6 chs.

Sin. 17° 32′ = 9.478942
Sin. 71° 28′ = 9.979340
Log. 6 chs. = 0.778151
Distance 18 chs. 96 lks. 1.278549

78.96 Leave canon, bears S. E.

80.00 Offset from tangent to Parallel, to 286th mile corner, on point West of canon, 50 feet deep, on a flat sand stone, marked 286 M. Built conical mound of stone 4 feet high, over same. Set sand stone 30x12x10, projecting 8 in. above mound, marked on the North -C- South -N. M.- West -1868- East -286 M.-

No natural objects near.

Surface broken.

Soil 1st half sand stone rock.

2nd half 3d rate.

Oct. 17th. Measuring chain compared with standard and found correct.

West on 287th Mile

Variation 14° 04′ East.

30.00 Canon 600 feet deep, bears S. E. It being impossible to measure line with chain over canon, I set flag on west side of canon, thence North 3 chs. I formed the triangle ABC with the measured angles A = 90 B = 59.02. Side AB = 3 chs. hence we have the formula.

Sin. 18° 26′ = 9.499963
Sin. 71° 34′ = 9.977125
Log. 3 chs. = 0.477121
Distance 9 chs. 0.954283

Perpendicular sand stone bluff on each side.

39.00 Leave canon, bears S. E.

80.00 Offset from tangent to Parallel, to 287th mile corner. Marked stone 5x4x2 -287 M.- and deposited it 3½ feet in earth. Built conical mound of stone, 4 feet high over same. Dug pits 10 lks. East and West from base of

Chains

mound, 2 feet square and 18 in. deep. Set sand stone 20x10x10, projecting 6 in. above mound, marked on
{fol. 513} the North -C.- South -N. M.- West -1868- East -287 M.-
No natural objects near.
Surface broken.
Soil 3d rate.

West on 288th Mile

Variation 14° 04′ East.

29.00 Deep canon 200 feet deep, bears S. S. E.
It being impossible to measure with chain on line, I set flag on West side of canon, on line, thence North 2 chs. flag bears South.

Sin. 26° 34′ =	9.650539
Sin. 63° 26′ =	9.951539
Log. 2 chs. =	0.301030
4 chs.	0.602039

33.00 Leave canon, bears S. S. E.

40.00 Canon, 250 feet deep bears S. W.
It being impossible to measure with chain on line, I set flag on West side of canon, thence North 250 lks. flag bears S. 63° 26′ E.

Sin. 26° 34′ =	9.650539
Sin. 63° 26′ =	9.951539
Log. 250 lks. =	0.397940
5 chs.	0.698940

45.00 Leave canon, having nearly perpendicular sand stone sides, bears S. W.

80.00 Offset from tangent to Parallel, to 288th mile corner. Marked stone 5 x 4 x 2 -288 M.- and deposited it 3½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 14 x 8, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -288 M.-
No natural objects near.
Surface broken.
Soil 3d rate.

West on 289th Mile

Chains

Variation 14° 05′ East.

13.50 Canon 600 feet deep, nearly perpendicular sand stone sides, bears S. 3 E. It being impossible to measure distance over canon with chain, I run North, 4 chs. flag bears S 66° 02′ W.

[fol. 514] Sin. 23.58 ..... 9.608745
Sin. 66.02 ..... 9.960884
Log. 4 chs. 0.602060
9.00 chs. 0.954158

22.50 Leave canon, cars S. S. E.

58.00 Canon, bears S. S. E. It being impossible to measure distance across canon, on line. North 4 chs., flag bears S. 67.48 W.

Sin. 22° 12′ 9.577402
Sin. 67° 48′ 9.966550
Log. 4 chs. 0.602060
9.82 chs 6.991301

67.82 Leave canon, 400 feet deep, nearly perpendicular sand stone bluffs, bears S. S. E.

80.00 Offset from tangent to Parallel, to 289th mile corner. Marked stone 5 x 5 x 4, -289 M.- and deposited it 31½ feet in earth. Built conical mound of earth and stone, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 14 x 10, projecting 6 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -289 M.-. No natural objects near.
Surface broken.
Soil 3d rate.

West on 290th Mile

Variation 14° 05′ East.

35.00 Top of hill bears South. From which point
Hay stack peak, on canon, bears N. 17½ W
A slide on ridge, bears N. 4 W
Conical mountain peak, bears N. 53 W
It being impossible to measure the line with chain, on account of the deep impassible canons, I measure the angle from tangent to the conical mountain peak in the Sierra Latra, which gives an angle of 37° or bears N. 53 W. The tangent was commenced at Astronomical Monument No. 9

Chains

by turning a right angle from the Asimuth at that point, which is 2° M. 48 chs. 25 lks. East and the divergency of tangent from Parallel for that distance is 423 lks. South. I then went back to the Rio la Platte, followed it up for a distance of 10 miles; thence West to the Rio los Mancos, and

[fol. 515] down that river to the point where the stream leaves the deep canon, and then made observations for Latitude at Astronomical station near the Rio los Mancos, and found from computation, that that point was 184.92 chs. North of the 37th Parallel. I therefore measured S. 4° 58' W. 185 chs. 55 lks. to the Parallel, and established Astronomical Monument No. 10 which is represented by a sand stone boulder 20 feet wide, 10 feet thick and 10 feet above the surface, marked with a + cut with chisel on the top, where the line would cross the same, and on the North "Colorado" South "New Mexico" West "1868" East "37 N. L." Dug pits.

From which point a
Large sand stone boulder bears N. 29 W., 130 lks. dist. marked "Colorado" "1868."
Large sand stone boulder bears S. 29 E., 130 lks. dist. marked "New Mexico" "1868." 250 lks. foot of high sand stone bluff, 600 feet high, and from a point just West of Astronomical Monument. I took a prominent point on bluff, about 7 miles North, for approximate asimuth in order to detect any movement of the instrument, while making the following observations for asimuth at astronomical monument No. 10, Oct. 25th, 1868.

Chronometer fast at mean noon, on solar time
h m s s
5. 47. 54 with a loosing rate of 26 per day.

	h	m	s
Time of observations by Chronometer on 51 Cephei, upper transit	10.	10.	40.
Chro time of observations of d Ursae Minoris	10.	43.	57
Chronometer interval		23.	17
Chronometer rate			00.3
Reduction to Sidereal time			03.8
Sidereal interval		23.	21.1
Interval between upper and lower transit		23.	25.9
			48

	h	m	s			
d Ursae Minoris RA	18.	14.	33.1	Dec.	86°	36' 42" .2

Chalas

[fol. 516]

		h	m	s	
51 Cephei	RA	6.	38.	09	Dec. 87° 14′ 03″ .5
△4M.8 x 15=72	Log.	1.85733			
Cos d 86° 35′ 42″		8.77300			
Cos d 87° 14′ 03″		8.68366			Variation 14°07′ East.
Sec. φ 37°		0.09765			
Cosec. 6°09′		0.96982			
West of true asimuth	33	0.38146			

In order to determine the distance—this point which is 191 lks. West of Astronomical Monument No 19 to the point on tangent, 35 chs. West of the 289th mile corner, where the bearing was taken to the mountain peak in the Sierra Latra, I took the following bearing, and carefully measured the following distances. The same Peak bears N. 6.30 W. I measured West on tangent 420 chs. The above mentioned Peak bears N. 9° 14′ 30″ E., and at 500 chs. the Peak bears N. 12°09′20″ E.

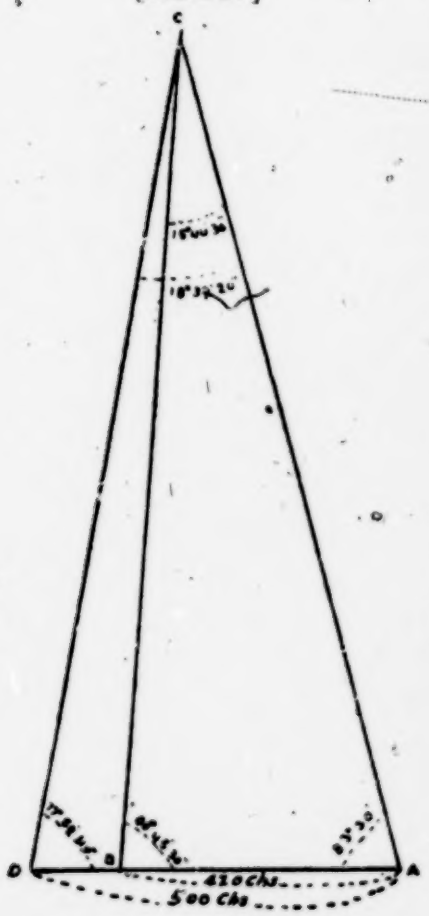
Therefore I have the following triangles ABC — ADC, with the common side AC, and the common measured angle A=83°30′, the measured angle B=80.45.30, D=77.50.20, side AB=420 chs., AD=500 chs. The following statements are made to find the common sides AC, as C is to B, so is AB to AC.

		Chs.	Lks.
Sin. 15°44′30″	9.4334505		
Sin. 80°45′30″	9.9943258		
Log. 420 chs.	2.6288587		
		15.47.87	3.1897340

		Chs.	Lks.
Sin. 18.39.20	9.5049846		
Sin. 77.50.40	9.9901521		
Log. 500.58 chs.	2.7046480		
		15.48.16	3.1898190

triangle ABC, side AC=1547 chs. 87 lks.; from triangle ADC, side AC=1548 chs. 16 lks. therefore the mean

[fol. 517]



Chatus

will be 1548 chs. 01 lks. = side AC. In order to compute the distance from the point at A we have to compute the distance, that the tangent commenced at, at the Astronomical Monument No. 9, would be South of the point A in the triangle, and we will assume the distance to be 47 miles and 30 chs. If the tangent had been extended west that distance it would have been South 1705 lks. and if the triangle, and we will assume angles from the point A in triangle a distance of 23 M. 62 chs. it would have been South of the Parallel 4.29 lks. therefore making the two tangents if started from the same point and extended the distance of 23 M 62 chs. a distance of 17 chs. 11 lks, apart, making a change of 38′ 08″ in course. Therefore if the course had been taken to the mountain Peak, assuming the same tangent that was used in the first bearings, the course would have been 6° 30′ — 30′ 08″ = 5°. 59′. 52″, or N. 5° 59′ 52″ W. and assuming the point S. 5° 59′ 52″ E. 17 chs. 20 lks. to the tangent, projecting from the Astronomical Monument No. 9, we have the triangle A B C the point B = 35 chs. on 290th mile. Point C a conical Peak in Sierra Latra Mountains that can be seen from nearly all points as it tapers to a small cone at the top Point A in San Juan valley. Measured angles B = 37°, A = 95°59′52″. Hence angle C = 47.00.08, Side AC = 1565 chs. 21 lks. I have the [fol. 518] angle B: C: AC: AB. hence we have the side AB = 19.02 chs. 19 lks. = 23 M. 62 chs. 19 lks. + 180 for the departure. West in a course N6W = 17 chs. 20 lks. from tangent to Parallel 23 M. 63 chs. 09 lks. - 190 lks. distance West of Astronomical Monument, makes a distance of 23 M. 62 chs. 09 lks. from the point 35 chs. West of the 289th mile corner, or 23 M. 62 chs. 09 lks. + 289 M. 35 chs. = 313 M. 17 chs. 09 lks. to Astronomical Monument No. 10 in San Juan valley. The country — the subject of this triangulation is very broken, cut up with deep canons, covered with scrub Pine and Cedar timber. The soil is coarse gravel, and no vegetation exists except cactus and soap weed.

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Sin. 37° = ... 9.7794630
Sin. 47°00'08" = ... 9.8641432
Log. 15.65.21 = ... 3.1945737

1902.19 chs. = ... 3.2792539

West on 314th Mile

Variation 14° 07' East.
from Astronomical monument which is 17.08 lks. West of place for 313th mile corner.

62.92 Offset from tangent to Parallel to 314th mile corner. Marked stone 3 x 3 x 3 -314M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C- -NM- -1868- -314M- respectively.
No natural objects near.
Surface nearly level Prairie.
Soil 3d rate.

West on 315th Mile

Variation 14° East.

86.69 Offset from tangent to Parallel, to 315 mile corner. Marked stone 5 x 5 x 4 -315M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long, and 6 in. square, beveled at the top, 3 feet in [fol. 519] the ground projecting 12 in. above mound, marked on the North -C- South -NM- West -1868- East -315M-.
No natural objects near.
Surface gently rolling prairie
Soil 2nd rate.

West on 316th Mile

Chains

Variation 14° 07′ East.

80.00 Offset from tangent to Parallel to 316th mile corner. Deposited charred block, 6 in. square, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post, 8 feet long and 6 in. square, beveled at the top, 3 feet in the ground, projecting 12 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -316 M.- respectively.
No natural objects near.
Surface gently rolling prairie.
Soil 2nd rate.

West on 317th Mile

Variation 14° 06′ East.

20.00 Indian trail bears North

80.00 Offset from tangent to Parallel to 317th mile corner. Marked sand stone 6x4x3 -317 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post 8 feet long and 6 in. square, beveled at top, 3 feet in ground, projecting 12 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -317 M.-.
No natural objects near
Surface gently rolling, Prairie.
Soil 3d rate.

West on 318th Mile

Variation 14° 06′ East.

80.00 Offset from tangent to Parallel to 318th mile corner. Marked stone 7x5x4 -318 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set charred Pine post 8 feet long and 6 in. square, beveled at the top, 3 feet in ground, projecting 12 in. above mound, marked on the North,
[fol. 520] South, West and East sides -C.- -N. M.- -1868- -318 M.- respectively.
No natural objects near.
Surface gently rolling prairie.
Soil 3d rate.

Chains

West on 319th Mile

Variation 14° 06' East.

74.00 Dry bed of Creek, 75 lks. wide, sandy and gravelly bottom, high banks, course W. N. W.

80.00 Offset from tangent to Parallel to 319th mile corner. Marked stone 8x6x3 -319 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set slate stone 36x16x4, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -319 M.-
No natural objects near.
Surface gently rolling.
Soil 3d rate.

West on 320th Mile

Variation 14° 06' East.

80.00 Offset from tangent to Parallel, to 320th mile corner. Marked stone 10x6x3 -320 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 28x14x6, projecting 8 in. above mound, marked on the North -C.- South -N. M.- West -1868- East -320 M.-
No natural objects near.
Surface broken.
Soil 3d rate.

West on 321st Mile

Variation 14° 06' East.

80.00 Offset from tangent to Parallel to 321st mile corner. Marked stone 5x5x4, -321 M.- and deposited it 31½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square, and 18 in. deep. Set sand stone 30x12x10, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -321 M.- respectively.
[fol. 521] No natural objects near.
Surface broken.
Soil 3d rate.

West on 322nd Mile

Chains

Variation 14° 06′ East.

12.00 I took the following bearings:
Mountains on West side of Rio Colorado bears N. 51 W.
West end of mountains bears N. 33 W.
Abutment, bears N. 59 E.
Perpendicular cliff, bears S. 75½ E.
Perpendicular cliff bears S. 72½ E.
Isolated body of rock and earth, having the appearance of a large Cathedral, bears S. 7 E.
Conical Peak, on East end of Tunichi mountains bears S. 10 W.
Conical Peak, on Tunichi mountains bears S. 13½ W.
Highest Point of mountain range, bears S. 52½ W.
Conical Peak on Sierra La Platte bears N. 37 E.

68.00 Dry bed of Creek, about 50 lks. wide, sandy bottom, course N. W.

76.00 Conical mound, about 40 feet high, on line.

80.00 Offset from tangent to Parallel to 322nd mile corner. Marked stone 6x4x3 -322 M.- and deposited it, 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug-pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x10x4, projecting 6 in. above mound, marked on the North, South, East and West sides -C.- -N. M.- -1868- -322 M.- respectively.
No natural objects near.
Surface broken.
Soil 3d rate.

West on 323d Mile

Variation 14° 07′ East.

80.00 Offset from tangent to Parallel to 323d mile corner. Marked stone 16x6x3 -323 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x14x3, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -323 M.- respectively.

[fol. 522] No natural objects near.
Surface broken.
Soil 3d rate.

Chains

West on 324th Mile

Variation 14° 07′ East.

80.00 Offset from tangent to Parallel, to 324th mile corner. Marked stone 10x6x3 -324 M.- and deposited it 3½ feet in earth. Built conical found of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x10x1, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -324 M.- respectively.

No natural objects near.

Surface broken.

Soil 3d rate.

West on 325th Mile

Variation 14° 07′ East.

51.00 Enter valley of the Mancos, subject to overflow, bears S. W.

52.50 Rio los Mancos, 70 lks. wide, clear water, 2½ feet deep, gentle current, sand bottom, high banks, filled with beaver dams, course S. W.

57.50 Leave valley, high banks, bears South.

58.50 Top of bluff.

Ruins of an old stone house, about 150 lks. South.

80.00 Offset from tangent to Parallel to 325th mile corner. Marked stone 6x5x3, -325 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20x10x6, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -325 M.- respectively.

No natural objects near.

Surface broken.

Soil 3d rate.

West on 326th Mile

Variation 14° 44′ East.

80.00 Offset from tangent to Parallel, to 326th mile corner. Marked stone 8x4x3 -326 M.- and deposited it 3½ feet [fol. 523] in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30x14x10, projecting 8 in. above mound, marked on the

Chains

North, South, West and East sides of "N. M.-1868-326 M.-" respectively.
No natural objects near.
Surface gently rolling, prairie.
Soil 3d.—.

West on 327th Mile

Variation 14° 07' East.

25.80 Indian trail, bears South.

39.00 Canon, bears S. W. and South.

NOTE.—A Vein of bituminous coal crops out on each side from 6 to 10 feet in thickness.

47.00 Leave canon, 200 feet deep, bears South.

70.00 Canon, 300 feet deep, bears West.

80.00 Place for 327th mile corner in canon on south side of hill, and impossible to establish corner.
No natural objects near.
Surface broken.
Soil 3d rate.

West on 328th Mile

Variation 14° 07' East.

10.00 Leave canon, bears West and enter San Juan valley, bears W. N. W.

72.50 Rio San Juan, water little muddy, 3½ feet deep, rapid current, gravelly bottom, banks low, course North. Set flag on opposite bank of river thence North 200 lks. flag bears S. 66° 02' W. distance over river 4.50 chs.

77.00 Over same, high banks, 10 feet high, course North.

80.00 Offset from tangent to Parallel to 328th mile corner. Marked stone 10 x 6 x 3 "328 M.-" and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits, 10 lks. East and West, from base of mound, 2 feet square and 18 in. deep. Set sand stone 28 x 12 x 10, projecting 8 in. above mound, marked on the North, South, West and East sides "C.-N. M.-1868-328M.-" respectively.
No natural objects near.
Surface level.
Soil 2nd rate.

[fol. 524] West on 329th Mile

Chains

Variation 14° 04′ East.

80.00 Offset from tangent to Parallel to 329 mile corner. Marked stone 8 x 6 x 4 -329 M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 20 x 6 x 5, projecting 6 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -229M.- respectively.
Surface nearly level.
Soil 2nd rate.

West on 330th Mile

Variation 14° 07′ East.

2.50 Bend in the San Juan, course W. S. W., muddy water, 7 feet deep, rapid current, high banks.
Sand bar in river, but North of line.

12.40 Over bend in river, high banks course N. W.

50.00 Leave valley of San Juan, bears North.

80.00 Offset from tangent to Parallel to 330th mile corner. Marked stone 5 x 3 x 4 -330M.- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square, and 18 in. deep. Set sand stone 26 x 12 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -330M.- respectively.
No natural objects near.
Surface gently rolling, last 50 chs. broken.
Soil 2nd rate.

West on 331st Mile

Variation 14° 07′ East.

38.40 Dry bed of Creek, sandy bottom, course N. W.

50.00 Leave dry bed of Creek, low banks, course N. W. and West.

80.00 Offset from tangent to Parallel to 331st mile corner. Marked stone 8 x 6 x 4 -331 M- and deposited it 3½ feet in earth. Built conical mound of earth, 4 feet high, over same. Dug pits 10 lks. East and West from base of mound, 2 feet square and 18 in. deep. Set sand stone 30 x 14 x 8, projecting 8 in. above mound, marked on the North, South, West and East sides -C.- -N. M.- -1868- -331M.- respectively.
No natural objects near.
Surface broken.
Soil 3d rate.

Chains

[fol 525] West on 332nd Mile

Variation 14° 07' East.

60.00 To 109° of West Longitude from Greenwich, according to Astronomical observation and computations made for Longitude near the 37th Parallel of North Latitude, and the observations made for Latitude.

I established Astronomical Monument No. 11 at this point for the corner stone to the Territories of Colorado, New Mexico, Arizona and Utah.

Deposited a sand stone 12 x 10 x 8, 3 feet in earth, engraved with a chisel 109° WL—NM—C—A1868. Set a sand stone 5 feet 10 in. in length by 18 x 10 in. 2½ feet in earth, durably engraved with a chisel on the N. E. "Colorado" -331 M.- -60 chs.- on the S. E. "New Mexico" "37 N. L.," on the S. W. "Arizona" "1868," on the N. W. "Utah" "109 W. L."

Built a circular mound of cobble stone, 7 feet at base, 3 feet high. Dug 4 pits on the North, South, East and West sides, 6 feet from base, 2 feet square and 18 in. deep.

The monument is situated on the high land, near a ridge that can be seen for some distance from the East and about 1½ miles from the Rio San Juan.

Bearings

South point of ridge, bears N. 87° W.
North point of Ridge, bears N. 65 W.
Highest Peak on Sierra Latra bears N. 40½ E.
Lone column of rock on same range, bears N. 44 E.
Lone column of rock on same range, East of same bears N. 48½ E.

Point of Bluff, on East side of valley, bears N. 55 E., about 30 miles dist.
North point of high plateau bears N. 82 E.
South point of high plateau, bears S. 88½ E.
South point of high ridge, bears S. 78¾ E.
Conical peak in Sierra Latra bears S. 16½ W.
Conical Peak in Sierra Latra bears S. 23 W.

We hereby certify, that we assisted Ehud N. Darling, Surveyor and Astronomer, in surveying the North boundary of New Mexico, which is the 37 Parallel of North Latitude, between the 103° and the 109° of West Longitude from Greenwich. That said line (aforesaid) has been in all respects to the best of our knowledge and belief, well and

[fol. 526] faithfully surveyed, and the monuments planted according to the instructions furnished by the Commissioner of the Genl. Land Office.

(Signed) Jno. E. McManus, North A. Haight, Chainmen. Robert Darling, Samuel Meyers, Otto Mangold, Cornermen. John E. Jones, Joel B. Durnall, Flagmen.

Subscribed and sworn to before me, a Notary Public, for the County of Douglass, City of Lawrence, Kansas, this 4th December, 1868. (Signed) W. A. Simpson, Notary Public, Douglass, Kansas. (Seal.)

I, Ehud N. Darling, do solemnly swear, that in pursuance of a contract with the Hon. Jos. S. Wilson, Commissioner of the General Land Office of the U. S. in Washington, bearing date the 22nd day of May, 1868, and in strict conformity to the laws of the United States, and the instructions furnished by the said Commissioner, I have faithfully surveyed the 37th Parallel of North Latitude, so far as it constitutes the North boundary of New Mexico, from the 103° to 109° of West Longitude from Greenwich, and I do further solemnly swear, that the foregoing are the true and original field notes of such survey.

(Signed) Ehud N. Darling, U. S. Surveyor and Astronomer.

Subscribed by said Ehud N. Darling, U. S. Surveyor and Astronomer, and sworn to, before me, a Justice of the Peace for the city and county of Washington, this 13th day of April, 1869. (Signed) T. C. Connolly, J. P.

[fol. 527] Department of the Interior,

General Land Office

April 30, 1869.

The foregoing field notes of the survey of the Northern boundary of New Mexico on the 37th Parallel of North Latitude from the 103° to 109th° of Longitude west from Greenwich, executed by Ehud N. Darling, Astronomer and Surveyor, under his contract of May 22, 1868, having been examined, are hereby approved.

(Signed) Jos. S. Wilson, Commissioner.

U. S. Surveyor General's Office, Denver, Colorado

I hereby certify this to be a correct copy of the Original field notes on file in this office.

Witness my hand and seal this 6th day of February A. D. 1920.

John B. McGauran, Surveyor General for Colorado. (Official Seal.)

[fol. 528] SUPREME COURT OF THE UNITED STATES

[Title omitted]

ORDER FOR APPEARANCE—Filed May 13, 1920

The Clerk will enter my appearance as counsel for the defendant.
Victor E. Keyes, State House, Denver, Colo.

[fol. 529] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

MOTION FOR LEAVE TO FILE MOTION TO STRIKE OUT PARTS OF ANSWER—Filed Oct. 25, 1920

Now comes said complainant and moves the court for leave to file a motion to strike out parts of the answer of defendant, and argument in support of said motion, and submits said motion and argument herewith.

State of New Mexico, by O. A. Larrazolo, Frank W. Clancy, Counsel for Complainant.

[fol. 530] [File endorsement omitted.]

[fol. 531] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MINUTE ENTRY OF ORDER GRANTING LEAVE TO FILE REPLICATION TO ANSWER AND ANSWER TO CROSS-BILL & MOTION TO STRIKE OUT PARTS OF ANSWER, ETC.—October 25, 1920.

On motion of Mr. Frederick S. Tyler in behalf of counsel for the complainant, leave is granted to file replication to the answer of the defendant, to file answer to the cross-bill, and to file motion to strike out parts of answer of the defendant to the bill of complaint.

[fol. 532] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

[fol. 533] MOTION TO STRIKE OUT PARTS OF ANSWER—Filed Oct. 25, 1920

Now comes the said complainant and assuming that Rule 33 of the Rules of Practice for Courts of Equity, is applicable to this case, or at least indicates the practice which this court considers preferable, moves the court to strike out from defendant's answer so much of Subdivision III thereof as is as follows:

"but defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by either the State of Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm the said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which passed the Senate and the House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with his objections thereto, which Resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter survey, and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is hereto attached and made a part hereof."

because the same is insufficient as a defense, or any part of a defense [fol. 534] to the allegations of the bill of complaint, and sets out matters which would be entirely irrelevant to any issue which can properly be raised in this case, and is therefore impertinent.

And complainant further moves the court to strike out of said answer all of Subdivision V thereof, except the two last paragraphs of that Subdivision, because the same is insufficient as a defense, or any part of a defense, to the allegations of the bill of complaint, and sets out matters which are entirely irrelevant to any issue which can properly be raised in this case, and is therefore impertinent.

O. A. Larrazolo, Frank W. Clancy, Counsel for Complainant.

[Title omitted]

In this case the bill of complainant sets out a line shown by what may be called the Carpenter survey, made by Howard B. Carpenter, under a contract with the United States, dated July 7, 1902, by which he was to re-survey, re-establish and re-mark the boundary line between Colorado and the Territories of New Mexico and Oklahoma, and avers that said line is the true and correct boundary line between Colorado and New Mexico and that Colorado has assumed jurisdiction, as is admitted by the answer, over country south of said line, but the answer denies that the Carpenter line is the true or correct boundary line between the two states although it fails to set up what is the true and correct boundary.

The answer as well as the bill of complaint shows that the 37th parallel of north latitude is properly the boundary line, and the Carpenter survey, according to the instructions given to Carpenter, which begin near the foot of page 3 of the printed bill of complaint, was, in effect, for the purpose of correctly establishing and marking that parallel on the earth's surface.

[fol. 535] Subdivision III of the answer, to a portion of which the motion to strike out is directed, after admitting that Carpenter did make a survey which was approved by the Commissioner of the General Land Office, proceeds as follows:

"but defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by either the State of Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm the said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which passed the Senate and the House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with objections thereto, which Resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter survey, and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is hereto attached and made a part hereof."

The matter above quoted is attacked by the motion to strike out; and complainant submits to the court that it is of no importance whether the Carpenter survey was ever approved by Congress, the issue properly being whether the survey is correct or not, and no action by Congress could have made it correct if it really were not,

nor could any action, or non-action, by Congress have made it incorrect if it were really correct, because Congress was without power to settle the question of a state boundary, jurisdiction as to such a question being vested in this court alone, as is substantially shown in the veto message of President Roosevelt, which appears on page 6 of the printed answer, where it is set out that to establish the true boundary line, an appropriate method would be to invoke by appropriate proceedings the original jurisdiction of this court. The United States might have instituted proceedings to invoke that jurisdiction as is established by U. S. vs. Texas; 143 U. S. 621, but the [fol. 536] government did not do so, and New Mexico as a Territory could not do so, but, as a State it has now invoked the jurisdiction of this court.

Obviously it is equally unimportant that the Carpenter survey has not been recognized by the General Land Office as no action or non-action by that office could change the location of the 37th parallel of latitude on the earth's surface.

The allegation in the answer that the Carpenter survey "failed to become effective in any respect" is not an allegation of fact but a statement of a mere conclusion on the part of the pleader.

There is nothing in the matter quoted from Subdivision III of the answer which can have any effect upon the ascertainment by this court of where the said 37th parallel is upon the earth's surface which is the vital question to be herein determined.

The motion to strike out is also aimed at Subdivision V of answer, excepting the two last paragraphs thereof. The matter objected to is as follows:

"For further defense to said bill of complaint, this defendant avers that in the Act of Congress, approved March 3rd, 1875, to enable the People of Colorado to form a Constitution and State government, and be admitted into the Union, (18 Statutes at Large, 474), and also by the Constitution adopted by the vote of the People of Colorado, and under which the State of Colorado was admitted into the Union by Proclamation of President Grant, August 1st, 1876, the 37th parallel of North latitude between the 25th and 32nd meridians of longitude West from Washington, was fixed as the southern boundary line of that State; that pursuant to authority of an Act of Congress, approved March 2nd, 1867, (14 Statutes at Large, 466), Ehud N. Darling, United States Surveyor and Astronomer, by the most approved methods of the time, surveyed and established in the year 1868, the 37th parallel of North latitude so far as it constituted the boundary line between the Territories of Colorado and New Mexico, and marked the same upon the earth's surface by mile corners and monuments, a copy of which survey together with the field notes of his work is attached hereto and made a part hereof, which field notes of said survey were examined and approved on the 30th day of April, 1869, by the Honorable Joseph S. Wilson, Commissioner of the General Land Office, as appears by his certificate to that effect attached to said field notes.

[fol. 537]

Defendant avers that for more than thirty (30) years, the position of the said Darling line remained undisputed, and the correctness of its technical execution unquestioned, and as so established the said Darling line has been generally recognized and acquiesced in by both of the States herein involved, and accepted by the Federal government, and is now recognized and accepted by the Federal government as the true and subsisting boundary line between Colorado and New Mexico; and by reason of the right and title acquired as hereinbefore set forth, this defendant from the time said boundary was so established in 1868 to the present time, has held lawful and rightful possession of and exercised dominion and sovereignty, and now claims the same, over the territory down to the said southern boundary line as established by the said Darling, and no further; county lines have been formed, towns and settlements have grown up, school districts, voting precincts, land districts and water districts have been created with reference to said line, public officers have been elected, property has been assessed, taxes levied and collected under the authority of the State of Colorado and its courts of both civil and criminal jurisdiction have exercised unquestioned jurisdiction in all places North of said boundary line and the State of New Mexico has exercised like jurisdiction in all places South of said line. County maps, State maps and maps prepared by the Federal government have for more than forty years last past delimitated said boundary according to said Darling survey, and government post offices have been established as being in Colorado when above said line, and in New Mexico when below said line, and public land surveys on both sides of said line were closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico fixed by reference to said line.

The 37th parallel of North latitude, as established by Howard B. Carpenter, passes through several towns lying wholly within the State of Colorado, according to the boundary as originally surveyed by Darling, and along the entire line there is a material, and in many places, excessive variance between the lines of the two sur- [fol. 538] veys, and the effect of said Carpenter survey if declared the true boundary line would be to remove a considerable strip of territory which is now within the State of Colorado, according to the Darling survey, and place it in the State of New Mexico.

The stone monument established by Capt. Macomb U. S. A. of the Topographical Bureau in 1858, under direction of the War Department, marking the intersection of the 37th parallel of North Latitude with 103 degrees of West Longitude from Greenwich, adopted as the initial point of the Darling Survey, was designated as the northwest corner of Indian Territory, now State of Oklahoma, in 1874 by John J. Major, U. S. Surveyor and Astronomer, in the survey and marking of the boundary between Indian Territory and Colorado Territory. The line attempted to be established by said Carpenter passed 93 lks. south of said Macomb monument and departed from the boundary lines established by both Darling and Major, and said Carpenter obliterated the marks upon said Macomb monument, theretofore and since hitherto recognized as the corner upon the

south line of Colorado and common to the States of New Mexico and Oklahoma, and attempted to relocate said common corner at a point about two miles easterly from said long established and accepted Macomb monument.

The said Carpenter survey consisted of a new fixation of the 37th parallel of North latitude independent of the line established by Darling in 1868, and not only failed of confirmation by Congress, but the Federal government up to the present time has declined to recognize the said Carpenter survey as the true boundary line between the said two states, and on the contrary has accepted and still accepts the said Darling survey as the true and correct boundary line between said two states."

It will be seen that while the answer sets up the making of a survey of the line in 1868 by a person named Darling, which was approved by the Commissioner of the General Land Office in 1869, yet it does not anywhere allege that the Darling survey was correct, although there is an averment of its correctness in defendant's cross-bill. The averment that the position of the Darling line for more than 30 years remained undisputed and the correctness of its technical execution unquestioned and that it has been generally recognized by both states and accepted by the federal government as [fol. 539] the true boundary line between Colorado and New Mexico, and the allegations as to exercise of sovereignty in accordance therewith by Colorado and New Mexico, and as to county, state and United States maps, post offices and public land surveys, set out no facts which are worthy of consideration by this court in arriving at a conclusion as to where the 37th parallel is on the earth's surface. The court will take notice of the fact that New Mexico did not come into existence as a state until January 6, 1912.

The averment that the 37th parallel of north latitude was fixed as the southern boundary of the state of Colorado, cat. not raise any issue in this case as the bill of complaint alleges, in substance, the same thing, and the answer in Subdivision II thereof substantially admits this allegation of the bill to be correct. This averment in the answer is clearly superfluous and subject to the objection stated in the motion to strike out.

The allegations as to the effect of declaring the Carpenter survey to be the true boundary line, sets out matter which is of no value to this court in its effort to ascertain whether that survey correctly locates the 37th parallel; and the allegations as to the Macomb monument, the obliteration by Carpenter of marks thereon, and its distance of 93 links from the Carpenter line, are equally valueless to the court in the present case and add nothing of substance to what is contained in the bill of complaint as will appear by reference to page 344 of the printed bill.

The object of the motion to strike out is not in any way to embarrass defendant in the presentation of its defense, but only to get rid of immaterial and irrelevant matters, and to avoid the presentation of testimony as to such matters which would unnecessarily en-

cumber the record and could have no effect except to confuse and delay.

The case presented by bill, answer and cross-bill, when stripped of the extraneous matters, is this:—Complainant relies upon the Carpenter survey as showing the true boundary line; defendant denies this, and appears to rely upon the Darling survey as showing the true line. The object of the parties is, or ought to be, to ascertain by the judgment of the court, which is correct.

O. A. Larrazolo, Frank W. Clancy, Counsel for Complainant.

[fol. 540] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

MOTION FOR LEAVE TO FILE REPLICATION TO ANSWER, &c.—Filed Oct. 25, 1920

Now comes said complainant and moves the court for leave to file a replication to the answer of defendant and answer to the cross-bill of complaint of defendant, and submits said replication and answer herewith.

State of New Mexico, by O. A. Larrazolo, Frank W. Clancy, Counsel for Complainant.

[fol. 541] [File endorsement omitted.]

[fol. 542] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

NOTICE OF SUBMISSION OF MOTION FOR LEAVE TO FILE REPLICATION, &c.—Filed Oct. 25, 1920

To Honorable Victor E. Keyes, Attorney General of Colorado, Denver, Colorado:

You are hereby notified that the plaintiff in the above entitled cause will, at the convening of the supreme court in Washington on the first Monday in October, 1920, said Monday being the 4th day of October, 1920, submit to the court a motion for leave to file a replication to the answer of defendant and an answer to the cross-bill of complaint of defendant, a copy of said motion, replication and answer being enclosed herewith; and will also at the same time and place submit to the court a motion for leave to file a motion to strike out parts of the answer of defendant with argument in support of said motion a copy of said motions and argument being also enclosed herewith.

O. A. Larrazolo, Frank W. Clancy, Counsel for Complainant.

[fol. 543] State of New Mexico
County of Santa Fe

Frank W. Clancy, being duly sworn, on his oath says that he has on this 24th day of August, 1920, deposited in the mail at Santa Fe, New Mexico, a duplicate of the foregoing notice, together with the inclosures mentioned in the said notice addressed to Victor E. Keyes, Attorney General of Colorado, Denver Colorado, duly postpaid.

Frank W. Clancy.

Subscribed and sworn to before me, a Notary Public in and for the state and county aforesaid, this 24th day of August, 1920. John J. Kenney, Notary Public. My commission expires 6/13/24. (Seal of John J. Kenney, Notary Public, Senate Fe County, N. M.)

[fol. 544] [File endorsement omitted.]

[fol. 545] In the Supreme Court of the United States

[Title omitted]

Replication to the Answer of Defendant—Filed Oct. 25, 1920

The said complainant, saving and reserving to itself all and all manner of advantage of exception to the manifold insufficiencies of the answer of said defendant, for replication thereto, says that it does and will aver and proye its said bill of complaint to be true, certain and sufficient in the law to be answered unto by the said defendant, and that the answer of the said defendant is uncertain, untrue and insufficient to be replied unto by this complainant; without this, that any other matter or thing whatsoever in the said answer contained, material or effectual in the law to be replied unto, confessed and avoided, traversed or denied, is true, all of which matters and things this complainant is and will be ready to aver and prove as this Honorable Court shall direct, and *and* humbly prays, as in and by its said bill it has already prayed.

The State of New Mexico, by O. A. Larrazolo, Frank W. Clancy, Counsel for Complainant.

[fol. 546] [File endorsement omitted.]

[fol. 547] In the Supreme Court of the United States

[Title omitted]

Answer to the Cross-Bill of the Defendant—Filed Oct. 25, 1920

The said complainant, the State of New Mexico, hereby waives the issuance and service of any process to require it to appear and answer the allegations in said cross-bill of complaint contained: and now,

and at all times hereafter, saving and reserving to itself all and all manner of benefit and advantage of exception to the many errors, uncertainties and imperfections in the said cross-bill of complaint contained, for answer thereunto, or unto so much thereof as it is advised it is material or necessary for it to answer, answering says:

That it denies that the true boundary line between plaintiff and defendant is described in the answer of the defendant except as far as that answer states that it is the 37th parallel of north latitude, and denies that the true boundary line between plaintiff and defendant is fully or correctly shown or delineated in the field notes of survey made in 1868 by Ehud N. Darling, attached to and made a part of said cross-bill as well as a part of said answer of defendant.

[fol. 548] And this complainant denies that any other matter or thing in the defendant's cross-bill of complaint contained, material or necessary for this complainant to make answer unto and not herein and hereby well and sufficiently answered, confessed and avoided, traversed or denied, is true to the knowledge or belief of this complainant: all of which matters and things this complainant is ready and willing to aver, maintain and prove as this Honorable Court shall direct, and humbly prays that said cross-bill of complaint be dismissed and that this complainant go hence without day, with its reasonable costs and charges in this behalf most wrongfully sustained.

The State of New Mexico, by O. A. Larrazolo, Frank W. Clancy, Counsel for Complainant.

[fol. 549] [File endorsement omitted.]

[fol. 550] SUPREME COURT OF THE UNITED STATES

[Title omitted]

NOTICE OF MOTION TO STRIKE, &c.—Filed May 24, 1921

May 23, 1921.

The Hon. Victor E. Keyes, Attorney General for State of Colo., New Willard Hotel, Washington, D. C.

DEAR SIR: You are hereby notified that the Complainant in the above entitled cause will, on the 23rd day of July, 1921, or as soon thereafter as the said Court may be in session, submit to the said Court its motion to strike out parts of the answer which has been on file in the Clerk's office for many months, and copies of which, together with the argument in support thereof, were served on you something in the year 1920.

Yours very truly, Frank W. Clancy, Special Counsel for Complainant. FWC:MK.

[fol. 551] [Title omitted]

DISTRICT OF COLUMBIA,
City of Washington

Frank W. Clancy, being duly sworn, on his oath, says that he is counsel for the Complainant in the above entitled cause, and that the notice hereto attached of intention to submit to the Court the motion of Complainant to strike out parts of the answer in said cause, addressed to the Hon. Victor E. Keyes, at the New Willard Hotel, Washington, D. C., has been mailed by him on this 23rd day of May, 1921, having been informed by said Attorney General on this day that the said Attorney General is stopping at the New Willard Hotel, in Washington.

Frank W. Clancy.

Subscribed and sworn to before me this 23rd day of May, 1921. C. D. Ratcliffe, Notary Public. (Seal of Charles D. Ratcliffe, Notary Public, District of Columbia.)

[fol. 552] SUPREME COURT OF THE UNITED STATES

[Title omitted]

May 23, 1921.

The Hon. Victor E. Keyes, New Willard Hotel, Washington, D. C.

DEAR SIR: I inclose herewith notice of intention to submit motion to strike out parts of your answer in the case of the State of New Mexico vs. State of Colorado, now pending in the Supreme Court of the United States.

Yours truly, Frank W. Clancy, Special Counsel for New Mexico. FWC:MK.

[fol. 553] [File endorsement omitted.]

[fol. 554] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MOTION TO SET MOTION TO STRIKE FOR HEARING—Filed July 25, 1921

Now comes the State of Colorado, the above named defendant, and moves the Court to set down for hearing and oral argument, upon a

day certain and convenient to the Court, the complainant's motion to strike out certain parts of the defendant's answer.

The State of Colorado, by Victor E. Keyes, Attorney General, Solicitor and of Counsel for the State of Colorado. Charles Roach, Deputy Attorney General; William R. Ramsey, Assistant Attorney General, Solicitors and of Counsel for the State of Colorado.

Post Office Address: Denver, Colorado.

[fol. 555] [Title omitted]

NOTICE

To the State of New Mexico, complainant herein, and to Honorable Frank W. Clancy, special counsel for said Complainant:

You will please take notice that the defendant in the above-entitled cause will, on Saturday the 23rd day of July, A. D. 1921, or as soon thereafter as the said court shall be in session and counsel can be heard, move the court to set down for hearing and oral argument the complainant's motion to strike out certain parts of the defendant's answer. A copy of defendant's said motion is annexed hereto.

The State of Colorado, by Victor E. Keyes, Attorney General for the State of Colorado; Charles Roach, Deputy Attorney General; William R. Ramsey, Assistant Attorney General, Solicitors and of Counsel for said Defendant.

[fol. 556] Santa Fe, New Mexico.

Service of the foregoing notice, by the receipt of a copy thereof, together with a copy of the motion mentioned therein, is hereby acknowledged this twenty-fifth day of July, A. D. 1921.

Frank W. Clancy.

[fol. 557] [File endorsement omitted.]

[fol. 558] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MINUTE ENTRY OF SUBMISSION OF MOTION TO STRIKE—October 4, 1921

The motion to strike out parts of the answer was submitted by Mr. Jay Turley in behalf of Mr. Frank W. Clancy for the complainant.

[fol. 559] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MOTION TO SET MOTION TO STRIKE FOR HEARING—Filed Oct. 4, 1921

Now comes the State of Colorado, the above-named defendant, and moves the court to set down for hearing and oral argument, upon a day certain and convenient to the court, the complainant's motion to strike out certain parts of the defendant's answer.

The State of Colorado, by Victor E. Keyes, Attorney General, Solicitor and of Counsel for the State of Colorado; Charles Roach, Deputy Attorney General; William R. Ramsey, Assistant Attorney General, Solicitors and of Counsel for the State of Colorado.

Post Office Address: Denver, Colorado.

[fol. 560] [Title omitted]

NOTICE

To the State of New Mexico, complainant herein, and to Honorable Frank W. Clancy, special counsel for said Complainant:

You will please take notice that the defendant in the above-entitled cause will, on Saturday, the 23d day of July, A. D. 1921, or as soon thereafter as the said court shall be in session and counsel can be heard, move the court to set down for hearing and oral argument the complainant's motion to strike out certain parts of the defendant's answer. A copy of defendant's said motion is annexed hereto.

The State of Colorado, by Victor E. Keyes, Attorney General for the State of Colorado. Charles Roach, Deputy Attorney General; William R. Ramsey, Assistant Attorney General, Solicitors and of Counsel for said Defendant.

[fol. 561] Santa Fe, New Mexico.

Service of the foregoing notice, by the receipt of a copy thereof, together with a copy of the motion mentioned therein, is hereby acknowledged this twenty-fifth day of July, A. D. 1921.

Frank W. Clancy.

[File endorsement omitted.]

[fol. 562] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MINUTE ENTRY OF SUBMISSION OF MOTION FOR LEAVE TO MAKE ORAL ARGUMENT ON MOTION TO STRIKE OUT—October 4, 1921

The motion for leave to make oral argument on complainant's motion to strike out parts of the answer was submitted by Mr. Victor E. Keyes for the defendant.

SUPREME COURT OF THE UNITED STATES

[Title omitted]

MINUTE ENTRY OF ORDER GRANTING LEAVE TO COUNSEL FOR COMPLAINANT TO FILE ADDITIONAL BRIEF—October 4, 1921

Leave was granted counsel for the complainant to file additional brief within 60 days on motion of Mr. Jay Turley for complainant.

[fol. 563] SUPREME COURT OF THE UNITED STATES

[Title omitted]

ORDER FOR APPEARANCE—Filed October 5, 1921

The Clerk will enter my appearance as Counsel for the complainant.

Jay Turley, 945 Munsey Bldg., Washington, D. C.

[fol. 564] SUPREME COURT OF THE UNITED STATES

[Title omitted]

ORDER DENYING MOTION TO STRIKE PARTS OF ANSWER—Filed Oct. 10, 1921

On consideration of the motion to strike out parts of the answer, It is now here ordered by this court that the said motion be, and the same is hereby, denied, without prejudice to its being presented when the case is reached on the merits.

per Mr. Chief Justice Taft, October 10, 1921.

[fol. 565] [File endorsement omitted.]

[fol. 566] SUPREME COURT OF THE UNITED STATES

[Title omitted]

ORDER FOR APPEARANCE—Filed January 11, 1922

The Clerk will enter my appearance as Counsel for the defendant
Delph E. Carpenter, Greely, Colo.

[fol. 567] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MINUTE ENTRY OF SUBMISSION OF MOTION FOR LEAVE TO FILE STIPULATION, ETC.—January 17, 1922

The motion for leave to file stipulation as to taking testimony herein was submitted by Mr. William R. Ramsey in that behalf.

[fol. 568] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

STIPULATION AS TO TAKING TESTIMONY AND SUGGESTION FOR ORDER THEREON—Filed Jan. 17, 1922

It is hereby stipulated and agreed by and between the complainant and defendant in the above entitled cause, by their respective attorneys, subject to the approval and order of the Court, that proofs shall be taken in said cause by an examiner or examiners to be named and designated in writing by agreement of said parties, each of whom shall have authority to administer oaths to witnesses, and before entering upon the discharge of his duties shall take and subscribe an oath that he will faithfully and impartially discharge and perform all duties devolving on him as such examiner according to the best of his ability and understanding, to be filed with the clerk of this Court together with the naming and designation of such examiner by said parties, and that such examiner or examiners shall, with all convenient speed, proceed to take all proofs which may be offered by said parties at such times and places as may be agreed on by said parties, or as may be designated by either of said parties upon ten days' notice to the opposing party; and shall reduce the same to writing and shall note all objections to questions or answers, or to the admissibility of any evidence offered, which may be made by either of said parties, provided, that any such ex-
[fol. 569] aminer shall be a competent stenographer and typist and that his compensation shall be fifteen cents per folio of one hundred

works of the original of the testimony and five cents per folio for each carbon copy thereof which he may, by either of said parties be called upon to furnish, such compensation to be paid by the party for whom the testimony is taken, or to whom such carbon copy or copies may be furnished; and provided further that such examiner shall not copy into his record any documentary evidence which may be offered, but he shall identify the same by appropriate markings as exhibits to be returned to this Court with his original record of the testimony taken, as a part thereof, which shall be a complete record of all proofs taken or offered, and of all proceedings in connection therewith, to the correctness of which he shall certify and file the same with the clerk of this Court.

It is further agreed that any matter appearing in the published statutes of Colorado, New Mexico, or of the United States, or in any congressional document, or other published governmental record pertaining to the issues herein shall be received as evidence without any further or other authentication than the publication thereof, subject, however, to any objections as to admissibility, on any ground as to competency, materiality, or relevancy other than authentication.

This January 16, A. D. 1922.

Frank W. Clancy, Counsel for Complainant. Victor E. Keyes, Attorney General of Colorado and counsel for Defendant, by William R. Ramsey, Assistant Attorney General of Colorado and Counsel for Defendant.

[fol. 570] [Title omitted]

ORDER

Upon reading the stipulation of said parties now submitted to the Court, after consideration by the Court, it is now ordered that the same may be filed, and, in pursuance thereof, that proofs shall be taken in this cause by an examiner or examiners, to be named and designated in writing by agreement of said parties, each of whom shall have authority to administer oaths to witnesses, and, before entering upon the discharge of his duties, shall take and subscribe an oath that he will faithfully and impartially discharge and perform all duties devolving upon him as such examiner, according to the best of his ability and understanding, to be filed with the clerk of this Court together with the naming and designation of such examiner by said parties, and that such examiner or examiners, shall with all convenient speed, proceed to take all proofs which may be offered by said parties at such times and places as may be agreed on by said parties, or as may be designated by either of said parties upon ten days' notice to the opposing party, and shall reduce the same to writing, and shall note all objections to questions or answers or to the admissibility of any evidence offered, which may be made by either [fol. 571] of said parties, provided that any such examiner shall be a competent stenographer and typist, and that his compensation shall

be fifteen cents per folio of one hundred words of the original of the testimony, and five cents per folio for each carbon copy thereof he may, by either of said parties, be called upon to furnish, such compensation to be paid by the party for whom the testimony is taken, or to whom such carbon copy or copies may be furnished; and provided further that such examiner shall not copy into his record any documentary evidence which may be offered, but he shall identify the same by appropriate markings as exhibits to be returned to this Court with his original record of the testimony taken, as a part thereof, which shall be a complete record of all proofs taken or offered, and of all proceedings in connection therewith, to the correctness of which he shall certify and file the same with the clerk of this Court; and it is further ordered that any matter appearing in the published statutes of Colorado, New Mexico, or of the United States, or in any Congressional document, or other published governmental record, pertaining to the issues herein, shall be received as evidence without any further or other authentication than the publication thereof, subject, however, to any objection as to admissibility on any ground as to competency, materiality, or relevancy, other than authentication.

[fol. 572] [File endorsement omitted.]

[fol. 573] SUPREME COURT OF THE UNITED STATES

[Title omitted]

ORDER GRANTING MOTION FOR LEAVE TO FILE STIPULATION—Filed Jan. 30, 1922

On consideration of the motion for leave to file a stipulation as to taking testimony herein,

It is now here ordered by this court that the said motion be, and the same is hereby, granted; and, in pursuance thereof, that proofs shall be taken in this cause by an examiner or examiners designated in writing by agreement of said parties, to be approved by the Court, each of whom shall have authority to administer oaths to witnesses, and, before entering upon the discharge of his duties, shall take and subscribe an oath that he will faithfully and impartially discharge and perform all duties devolving upon him as such examiner, according to the best of his ability and understanding, to be filed with the clerk of this Court together with the naming and designation of such examiner by said parties, and that such examiner or examiners, shall with all convenient speed, proceed to take all proofs which may be offered by said parties at such times and places as may be agreed on by said parties, or as may be designated by either of said parties upon ten days' notice to the opposing party, and shall reduce the same to writing, and shall note all objections to questions or answers or to the admissibility of any evidence offered, which may be made by either of said parties, provided that any such examiner shall be a competent

stenographer and typist, and that his compensation shall be fifteen cents per folio of one hundred words of the original of the testimony, [fol. 574] and five cents per folio for each carbon copy thereof he may, by either of said parties, be called upon to furnish, such compensation to be paid by the party for whom the testimony is taken or to whom such carbon copy or copies may be furnished; and provided furtner that such examiner shall not copy into his record any documentary evidence which may be offered, but he shall identify the same by appropriate markings as exhibits to be returned to this Court with his original record of the testimony taken, as a part thereof, which shall be a complete record of all proofs taken or offered, and of all proceedings in connection therewith, to the correctness of which he shall certify and file the same with the clerk of this Court; and it is further ordered that any matter appearing in the published statutes of Colorado, New Mexico, or of the United States, or in any Congressional document, or other published governmental record, pertaining to the issues herein, shall be received as evidence without any further or other authentication than the publication thereof, subject, however, to any objections as to admissibility on any ground as to competency, materiality, or relevancy, other than authentication.

Per Mr. Chief Justice Taft, January 30, 1922.

[fol. 575] [File endorsement omitted.]

[fol. 576] SUPREME COURT OF THE UNITED STATES

[Title omitted]

STIPULATION DESIGNATING EXAMINERS—Filed Apr. 27, 1922

In pursuance of the order of the court, made on January 30, 1922, the parties to the above entitled cause, hereby agree, subject to the approval of the court as provided in said order, to designate and to hereby designate the following named persons as examiners to take proofs in said cause as provided in the said order of the court, at the several places mentioned in connection with said names: Henry C. Luther, of Denver Colorado; Douglas O. Morgan, of Washington, D. C.; Ethel E. Stevenson, of Santa Fe, New Mexico.

Frank W. Clancy, Counsel for Complainant. Victor E. Keyes, Attorney General of Colorado, for Defendant.

[fol. 577] [File endorsement omitted.]

[fol. 578] SUPREME COURT OF THE UNITED STATES

[Title omitted]

ORDER APPROVING STIPULATION DESIGNATING EXAMINERS—Filed May 15, 1922

On motion of Mr. Edward T. Taylor in behalf of counsel for the defendant, it is now here ordered that the designation of Henry C. Luther of Denver, Colorado, Douglas O. Morgan, of Washington,

D. C., and Ethel F. Stevenson, of Santa Fe, New Mexico, as examiners to take testimony in this cause pursuant to the stipulation filed herein on April 27, 1922, be, and the same is hereby approved.

May 15, 1922.

[File endorsement omitted.]

[fol. 579] SUPREME COURT OF THE UNITED STATES

[Title omitted]

OATH OF ETHEL F. STEVENSON AS EXAMINER—Filed June 16, 1922

STATE OF NEW MEXICO,
County of Santa Fe:

I, the undersigned, Ethel F. Stevenson, of Santa Fe, New Mexico, having been designated by agreement in writing of the parties to the above entitled cause, as one of the examiners to take proofs in said cause in accordance with the order of the court made and entered on January 30, 1922, do hereby solemnly swear that I will faithfully and impartially discharge and perform all duties devolving upon me as such examiner, according to the best of my ability and understanding.

Ethel F. Stevenson.

Subscribed and sworn to before me this 12 day of June, 1922. Gail M. Osborn, Notary Public. My commission expires 3-5-25. (Seal.)

[fol. 580] [File endorsement omitted.]

[fols. 581-583] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

OATH OF EXAMINER—Filed Sept. 11, 1922

STATE OF COLORADO,
City and County of Denver, ss:

I, the undersigned, Henry C. Luther, having been designated in writing by agreement of the said parties as examiner to take proofs in the city and county of Denver in said cause, do hereby solemnly swear that I will faithfully and impartially discharge and perform the duties devolving upon me as such examiner according to the best of my ability and understanding.

Henry C. Luther

Sworn to before me and subscribed in my presence by the said Henry C. Luther, this 17th day of July, A. D., 1922. Russell K. Allen, Notary Public. My commission expires March 1, 1923. Russell K. Allen, Notary Public, City & County of Denver, Colo.

[fol. 584] [File endorsement omitted.]

[fol. 585] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

OATH OF DOUGLAS O. MORGAN AS EXAMINER—Filed Sept. 14, 1922

CITY OF WASHINGTON,
District of Columbia, ss:

I, the undersigned, Douglas O. Morgan, having been designated in writing, in accordance with the order of the Court, by agreement of the parties to the above-entitled cause as an examiner to take testimony in said cause at Washington, D. C.

Do hereby solemnly swear that I will faithfully and impartially discharge and perform all duties devolving upon me as such examiner, according to the best of my ability and understanding.

Douglas O. Morgan.

Sworn to and subscribed before me this 3d day of July, 1922. David W. Gall, Notary Public in and for the District of Columbia. David W. Gall, Notary Public, District of Columbia.

[fol. 586] [File indorsement omitted.]

[fol. 587] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MOTION FOR LEAVE TO FILE AMENDED ANSWER, &C.

Now comes the defendant, the State of Colorado, and moves for leave to file its amended answer and amended cross-bill to the bill of complaint of the complainant, the State of New Mexico.

The State of Colorado, by Wayne C. Williams, Its Attorney General. Charles Roach, Deputy Attorney General. Oliver Dean, Assistant Attorney General. Delph E. Carpenter, of Counsel for the State of Colorado.

CLERK'S COPY.

Vol. II

TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, ~~1924.~~ 86 1960

No. ~~12~~ 1, Original

THE STATE OF NEW MEXICO, COMPLAINANT,

vs.

THE STATE OF COLORADO

IN EQUITY

FILED OCTOBER 29, 1919

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1924

No. 12, Original

THE STATE OF NEW MEXICO, COMPLAINANT,

vs.

THE STATE OF COLORADO

IN EQUITY

VOLUME II

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[fol. 588] [Title omitted]

STIPULATION

Come now the parties above mentioned, and by their respective solicitors and counsels stipulate and agree:

That the State of Colorado may have leave to file herein its amended answer and amended cross-bill, and the State of New Mexico hereby acknowledges receipt of a copy of said amended answer and amended cross-bill, and also of a copy of the motion of the State of Colorado for leave to file said amended answer and amended cross-bill, and hereby waives any other or further notice of the presentation of said motion, and consents that said motion may be submitted and granted without further delay.

Dated February 29, 1924.

The State of New Mexico, by Frank W. Clancy, Its Special Counsel. The State of Colorado, by Wayne C. Williams, Its Attorney General. Charles Roach, Deputy Attorney General. Oliver Dean, Assistant Attorney General. Delph E. Carpenter, of Counsel for the State of Colorado.

[fol. 589] SUPREME COURT OF THE UNITED STATES

[Title omitted]

THE AMENDED ANSWER AND CROSS-BILL OF THE STATE OF COLORADO TO THE BILL OF COMPLAINT OF THE STATE OF NEW MEXICO

[fol. 590] To the Honorable the Chief Justice and Associate Justices of the Supreme Court of the United States:

The Amended Answer and Cross-bill of the State of Colorado to the Bill of Complaint of the State of New Mexico.

And now comes the State of Colorado, and for its amended answer, filed by leave of this Court, to said bill says:

I

This defendant admits that the ground upon which the Court's jurisdiction of the matters set forth in the bill of complaint depends, is that the said bill sets out a controversy between two states of which this Court has original jurisdiction.

II

This defendant admits that by the legislation of Congress, and by the Constitution of the State of New Mexico under which the said State was admitted into the Union of States, the northern boundary

line thereof extends along the 37th parallel of north latitude from the intersection of said parallel with the 32nd meridian of longitude west from Washington in an easterly direction to the point where said [fol. 591] parallel of latitude intersects the 103rd meridian of longitude west from Greenwich, and avers that the State of New Mexico was admitted into the Union of States on the 5th day of January, 1912.

III

This defendant admits that on the 7th day of July, 1902, Howard B. Carpenter, a United States Surveyor, entered into a contract with the United States to re-survey, re-establish, and re-mark the boundary line between Colorado and the Territories of New Mexico and Oklahoma, and that in pursuance of said contract the said Carpenter did thereafter proceed to re-survey, re-establish and re-mark the said boundary line as is shown by the record and field notes of his work, and admits that said field notes were approved by the then Commissioner of the General Land Office; but defendant avers that said Carpenter survey and his field notes of the said boundary line were never confirmed by the Congress of the United States, nor by either the State of Colorado, or the Territory or State of New Mexico, but that, on the contrary, an effort was made to confirm the said Carpenter survey in the first session of the 60th Congress, by the introduction in the Senate of Senate Joint Resolution No. 78, which passed the Senate and the House of Representatives, and was submitted to the President for his approval, and that the said Joint Resolution was on the 19th day of December, 1908, upon the advice of the Attorney General of the United States, disapproved by the President and returned to the Senate with his objections thereto, which Resolution, upon the same day, was laid upon the table by the Senate, and no further action has since been taken thereon by Congress, and the said Carpenter survey, and boundary line as shown by said field notes, failed to become effective in any respect and was never recognized by the General Land Office of the United States as the boundary line between Colorado and New Mexico. A copy of said veto message of the President is attached to Colorado's original answer on file herein, and by reference thereto is hereby made a part hereof.

[fol. 592] IV

This defendant denies that the line surveyed and established by the said Carpenter, as shown by his field notes, is the true or correct boundary line between the said two states; admits that in disregard of said Carpenter line it has exercised jurisdiction over a considerable amount of territory south of said Carpenter line, and has levied and collected taxes upon property south of said line, and through its Courts, has exercised both civil and criminal jurisdiction over persons and property lying south of said line, but denies that said acts, doings, pretenses or claims of the State of Colorado, or any of the same, are contrary to equity or good conscience or tend to the manifest or any wrong, injury or oppression of the State of New Mexico,

or of its citizens or owners of property within its boundaries, or that said acts or any thereof were or are unlawful or in usurpation of the jurisdiction, rights or authority of said State of New Mexico.

V

(a) For further defense to said bill of complaint, this defendant avers that in the Act of Congress, approved March 3rd, 1875, to enable the People of Colorado to form a Constitution and State Government, and be admitted into the Union, (18 Statutes at Large, 474), and also by the Constitution adopted by the vote of the People of Colorado, and under which the State of Colorado was admitted into the Union by Proclamation of President Grant, August 1st, 1876, the 37th parallel of north latitude between the 25th and 32nd meridians of longitude west from Washington, was fixed as the southern boundary line of that State.

(b) That in the year 1859, Captain Macomb, U. S. A., of the Topographical Bureau, under direction of the War Department, established a stone monument, known as the Macomb Monument, to mark the intersection of the 37th parallel of north latitude with the 103rd meridian of longitude west from Greenwich.

[fol. 593] (c) Pursuant to authority of an Act of Congress, approved March 2nd, 1867 (14 Statutes at Large, 466), and under a contract with the Commissioner of the General Land Office of the United States, Ehud N. Darling, United States Surveyor and Astronomer, by the most approved methods of the time, surveyed and established in the year 1868, the 37th parallel of north latitude so far as it constituted the boundary line between the Territories of Colorado and New Mexico, from said Macomb Monument westward, and marked the same upon the earth's surface by mile corners and monuments, as appears by the record and field notes of his work, a copy of which is attached to the original answer filed herein by said State of Colorado and by reference thereto is hereby made a part hereof, which field notes of said survey were examined and approved on the 30th day of April, 1869, by the Honorable Joseph S. Wilson, Commissioner of the General Land Office, as appears by his certificate to that effect attached to said field notes.

(d) On June 2nd, 1873, John J. Major, a surveyor and astronomer, entered into a contract with W. W. Curtis, acting Commissioner of the General Land Office of the United States, among other things, to well, truly and faithfully, by astronomical observations and geodetic measurements, establish in its true position so much of the south boundary of the Territory of Colorado as lay between the 25th and 103rd meridians of longitude west of Washington and Greenwich, respectively, as defined in Section 1 of the Act of Congress entitled "An Act to provide a temporary government for the Territory of Colorado" approved February 28, 1861, Stats. at Large, Vol. 12, page 172, and in pursuance of said contract, said Major did thereafter proceed to survey, establish and mark the line of said boundary

on the surface of the earth, beginning at the southwest corner of the State of Kansas, and running westerly to what is known as the Johnston Monument (which is about one mile and sixty-two chains westerly from said Macomb Monument), as appears by the record and field notes of his work, a copy of which record and field notes [fol. 594] beginning with the opening sentence thereof and including the part covering said survey from the said Major's 52.5 mile post to said Macomb Monument, together with said Major's oath of his performance of said contract, and the certificate of examination and approval by the Commissioner of the General Land Office of the astronomical observations and computations as well as field notes of the survey of said Major under said contract, is hereto attached and made a part hereof, and which record and filed notes having been examined and found correct, were approved July 29, 1874, by the Commissioner of the General Land Office, as appears by his certificate to that effect attached to said record and field notes. That said 52.5 mile post of said Major is about 21.97 chains easterly from the Preston Monument, hereinafter mentioned and described, and said mile post is the nearest determinable point in said field notes, easterly from said Preston Monument.

(e) In the month of June, 1900, Levi S. Preston, a United States Deputy Surveyor, working under and in pursuance of an agreement dated October 25, 1899, between Quinby Vance, Surveyor General of the United States for New Mexico, acting for and in behalf of the United States, and said Preston, and under and in pursuance of certain instructions given to him by the said Vance in connection with and made a part of said contract, which contract and instructions had theretofore and on February 26, 1900, been approved by the Commissioner of the General Land Office of the United States, retraced, re-marked and re-established the survey and line, established by said Major in 1874, from said Macomb Monument easterly for a distance of two miles and 40.53 chains to its intersection with the Cimarron meridian established by Chaney and Smith in 1881, at which point, in pursuance of said contract and said instructions, the said Preston set up a monument (which is sometimes called the Preston Monument) as and for the northeast corner of the Territory of New Mexico and as and for the intersection of said 37th parallel with said Cimarron meridian, which said Cimarron meridian is the boundary line between the States of New Mexico and Oklahoma, [fol. 595] and did establish said portion of said Major line as the north boundary of New Mexico between said Macomb Monument and said Preston Monument; and that thereafter and on May 7, 1901, the field notes and survey of said Preston for said lines were accepted and approved by said Quinby Vance as U. S. Surveyor General for New Mexico. A copy of said Preston's record and field notes of his said survey of said portion of the boundary between Colorado and New Mexico is hereto attached and made a part hereof.

(f) Defendant avers that for more than thirty (30) years, the position of said Darling line remained undisputed, and the correctness of its technical execution unquestioned, and as so established

the said Darling line has been generally recognized and acquiesced in by both of the States herein involved, and accepted by the Federal government, and is now recognized and accepted by the Federal government as the true and subsisting boundary line between Colorado and New Mexico from said Macomb Monument westward, and by reason of the right and title acquired as hereinbefore set forth, this defendant from the time said boundary was so established in 1868 to the present time, has held lawful and rightful possession of and exercised dominion and sovereignty, and now claims the same, over the territory down to the said southern boundary line as established by the said Darling, and no farther; county lines have been formed, towns and settlements have grown up, school districts, election districts, voting precincts, land districts and water districts have been created with reference to said line, public officers have been elected, property has been assessed, taxes levied and collected under the authority of the State of Colorado, and its courts of both civil and criminal jurisdiction have exercised unquestioned jurisdiction in all places north of said boundary line and the State of New Mexico has exercised like jurisdiction in all places south of said line. County maps, State maps, and maps prepared by the Federal government have for more than forty years last past delimitated said boundary according to said Darling survey, and government post [fol. 5961] offices have been established as being in Colorado when above said line, and in New Mexico when below said line, and public land surveys on both sides of said line were closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico fixed by reference to said line.

(g) That since 1874 the said Major survey and marking of said 37th parallel has been the recognized and accepted south boundary of Colorado from the southwest corner of Kansas westward to said Macomb Monument, and since the acceptance of the Preston survey, retracement and re-marking of the Major line, in the years 1901, as hereinbefore alleged, said Major line as retraced and re-marked by Preston between said Macomb Monument and said Cimarron meridian has been and now is the boundary between Colorado and New Mexico from said Macomb Monument to said Preston Monument.

(h) The 37th parallel of North latitude, as established by Howard B. Carpenter, passes through several towns lying wholly within the State of Colorado, according to the boundary as originally surveyed by Darling, and along the entire line there is a material and in many places, excessive variance between the lines of said two surveys, and the effect of said Carpenter survey if declared the true boundary line would be to remove a considerable strip of territory which is now within the State of Colorado, according to the Darling survey, and place it in the State of New Mexico. The line attempted to be established by said Carpenter passed 93 links south of said Macomb Monument and 110 links south of said Preston Monument, and departed from the boundary lines established by both Darling and Preston, and said Carpenter line, if adopted, would remove a con-

siderable strip of territory from the State of New Mexico in the vicinity of said Macomb and Preston Monuments and place it in the State of Colorado.

(i) The said Carpenter survey consisted of a new fixation of the [fol. 597] 37th parallel of north latitude independent of the line established by Darling in 1868, and by Major in 1874 (retraced and reestablished by Preston in 1900), and not only failed of confirmation by Congress, but the Federal Government up to the present time has declined to recognize the said Carpenter survey as the true boundary line between the said two States, and on the contrary has accepted and still accepts the said Darling and Major surveys as the true and correct boundary line between said two States.

All of which matters and things as hereinbefore stated, this defendant avers to be true and this defendant pleads the same in bar to the bill of complaint, and prays the judgment of the Court whether it shall further answer said bill.

Wherefore, having answered fully all the matters in plaintiff's bill set forth, defendant prays this Honorable Court that the prayer thereof be not granted, but that the line surveyed, established and marked by the said Darling from said Macomb Monument westward, and the line surveyed, established and marked by said Major, and retraced and re-marked by said Preston, between said Macomb Monument and said Preston Monument, be by this Honorable Court decreed to be the true boundary line between the said two States, and that the said bill be dismissed and the defendant go hence with its costs in this behalf incurred, and that this defendant have such other and further relief as may be found necessary and as to the Court shall seem meet and proper.

[fol 598] Amended Cross-bill

And now by way of amended cross complaint and for affirmative relief against the plaintiff, your orator, the State of Colorado, shows to the Honorable the Chief Justice and Associate Justices of the Supreme Court of the United States:

That the true boundary line between plaintiff and defendant is described in the foregoing amended answer and is fully and correctly shown and delineated in the field notes and survey made in 1868, by Ehud N. Darling, attached to the original answer of the State of Colorado herein, and by reference made a part of the amended answer of the State of Colorado and a part of this amended cross-bill, and in the field notes and survey of said John J. Mayor and in the field notes and survey of said Levi S. Preston, retracing, remarking and reestablishing said Mayor line from the Macomb Monument to the Preston Monument on the Cimarron meridian, attached hereto and made a part of this amended cross-bill as well as a part of said amended answer, and for this amended cross-bill defendant adopts the allegations of fact contained in the foregoing amended answer and makes the same a part of this amended cross-

bill, as fully and to all intents and purposes as if the said allegations were set out in detail in this amended cross-bill; and defendant further avers the said Carpenter in making his said survey destroyed and obliterated many of the monuments and corners established by said Darling in making his said survey.

Wherefore, your orator, to the end that it may obtain the relief to which it is justly entitled, and avoid future controversies in reference hereto, prays the Court to grant unto your orator such process of this Honorable Court as may be appropriate to require the plaintiff, the State of New Mexico, to appear and answer (not under oath, answer under oath being hereby expressly waived) to the several allegations in this amended cross-bill contained; and that upon the final hearing hereof the true southern boundary line of [fol. 599] the State of Colorado and the northern boundary line of the State of New Mexico, be declared and decreed by this Court to be the line established as aforesaid by Ehud N. Darling in the year 1868, and by said Major and Preston in 1874 and 1900 respectively, and as the same is shown by the field notes of their work, attached hereto and to the original answer of the State of Colorado herein, and made a part hereof, and that the defendant have such other and further relief as may be found necessary in order to correctly restore, re-establish and re-mark said lines as the boundary line between the plaintiff and defendant, and as to the Court shall seem meet and proper, and that the defendant have and recover its costs herein incurred.

The State of Colorado, by Wayne C. Williams, Its Attorney General, Charles Roach, Deputy Attorney General, Oliver Dean, Assistant Attorney General, Delph E. Carpenter, of Counsel.

[fol. 600] EXHIBIT TO AMENDED ANSWER AND CROSS-BILL

Field-notes of John J. Major, U. S. Surveyor and Astronomer, of a Portion of the Suthern Boundary of Colorado

"Ran west from the corner of Kansas, Colorado and Indian Territory * * *

* * * * * * *

"* * * Planted a seasoned pine post 5 feet x 5 in
32 M x 5 deeply marked "C. 37 L. 1874. Built mound of earth & stone dug trench. Bearings. A butte S. by E. distant ¾ mile. A butte N. by E. distant about 17 chains. Thence gradual decline through valley, land level, soil improving to end of 80 chs. Made excava-
33 M tion planted a seasoned pine post 5 ft. x 5 in deeply marked "C "37 L. 1874. Built mound of earth with trenches & pits. Bearings Mountain butte S. 33° 30' W. distant 1 mile. Lone symmetrical butte N. 77° 40' E.

distant $^3/_4$ miles. Thence through valley, the latter part of mile just north of high mountain; 80 Chs. terminating on north edge of mountain side among very large

54M boulders. Could get no bearings. Built monument of stone; marked large boulder on South of line, but north face "37 L, another north of line and south face "C, 1874." Mag. Variation 13° E. at 2 P. M. Begin very steep ascent 260 feet to top of bluff and over narrow neck of ridge putting down N. by E. 20 chs. to edge of steep side of mountain, almost perpendicular descent 200 ft. to small valley at 40 chs. This valley heads a short distance South and bears down N. N. E. to a larger one that comes from W. to E., then turns to S. E. and S. Thence up mountain side over rocky slope 62.50 chs. near north end of rocky cliff cross and descend to small

Macomb's Monument valley and ascend 230 ft. to east edge of mountain and Capt. Macomb's monument to mark the 103° Meridian.

55M It is a large stone mountain 10 feet in diameter at base

$22^1/_2$e 8 feet high and cap stone marked "C. N. M. IT.1868."

[fol. 601] Removed the monument for further information but found none. Mr. Darling had built over Macomb's original monument. Rebuilt this monument so that it stands as Darling left it. * * *

* * * * * * *

"I, John J. Major, U. S. Astronomer & Surveyor do solemnly swear that in pursuance of a contract with the Commissioner of the General Land Office bearing date June 2, 1873, and in strict conformity to the Special Instructions of the Commissioner have faithfully surveyed and marked that portion of the Southern Boundary of Colorado, included between the 25th Meridian west from Washington and the 103° Meridian west from Greenwich, also that portion of the Boundary of New Mexico embraced between the parallels of 36° 30' & 37° and do further swear that the foregoing are the true and original field notes of such survey.

John J. Major, U. S. Astronomer & Surveyor.

"Subscribed by said John J. Major, U. S. Astronomer & Surveyor and sworn to before me, a justice of the peace of the District of Columbia this 25th day of July, A. D. 1874. J. Tyler Powell, Justice of the Peace." (Seal.)

[fol. 602] "Department of the Interior,

General Land Office,

Washington, D. C., July 29, 1874.

The foregoing astronomical observations and computations as well as fields notes of the survey of that portion of the Southern Boundary of Colorado Territory included between the 25th Meridian West

from Washington and the 103rd Meridian West from Greenwich, also of that portion of the Eastern boundary of the Territory of New Mexico lying between the 36° 30′ and 37° parallel of North Latitude, as executed by John J. Major, Astronomer and Surveyor, in conformity with his contract with the Commissioner of the General Land Office, bearing date June 2d, 1873, having been examined and found correct, are hereby approved.

"S. S. Burdett, Commissioner."

[fol. 603] EXHIBIT TO AMENDED ANSWER AND CROSS-BILL

"Field-notes of the Survey of a Portion of the Boundary Line Between Colorado and New Mexico as surveyed by Levi S. Preston, U. S. Deputy Surveyor, under His Contract No. 336, Dated October [illegible] 1899

Survey commenced June 28, 1900.
Survey completed June 29, 1900.

* * * * * * *

Macomb Monument	N. Bdy.	N. Mex.	E. of Mon.		Cimarron Meridian
	1st m.	2nd m.	3rd m.		

* * * * * * *

Chains "Retracement of Portion of N. Bdy. of New Mexico

From the point on State line bet. Rs. 36 and 37 E., whence the Macomb monument, heretofore described, bears West 48.43 chs. dist. in plain sight; I turn angle of 90° and run

West on random line on boundary line bet. Colorado and N. Mexico.

48.43 To monument established by Capt. Macombe in 1859 and heretofore described.

127.93 To 1st mile stone West of Macombe monument. Sandstone 8 + 9 + 28 ins. in mound of stones marked 1 M. on E., N. M. on S. and Col. on N. Face and properly witnessed [fol. 604] by mound of stone, bears N. 20 lks. dist.

Chains

196.58 The monument established by Lt. Col. Johnson in 1857, bears N. 70 lks. dist., a mound of earth 15 ft. base, 1 ft. high with grass growing on same and surrounded by a circular trench 24 ft. in diam. also find sandstone 24 + 19 + 5 ins. lying near, marked 103° L., 37° L., N. M. Major 1874, evidently stone set in Johnsons Monument by Major in 1874.

I reset stone in center of mound so that it reads

"103° L. on E.

"1874 N. M. Major on W.

37° L. on N. as described in field notes furnished me by the Surveyor General. I therefore conclude that the corner established by Macomb in 1859 was formerly used as the N. E. Cor. of New Mexico in running the Colo. and N. M. bdy. I find the course from Macomb Monument to first mile to be N. 89° 51' W. 79.50 chs. Thence N. 89° 35' W. 68.65 chs. to Johnson Monument.

June 28th, 1900.

"Survey of a Portion of N. Bdy. of N. Mex.

On June 29, 1900, I set up at the monument established by Capt. Macomb, heretofore described at 0h. 47m. a. m. to 1h. 0m. a. m., 1 m.t., I observe Polaris at Eastern elongation, in accordance with manual of instructions and mark the line thus determined by tack in peg set firmly in ground 5 chs. N. of my station.

At 7h. a. m., 1 m.t., I lay off azimuth of Polaris 1° 32' to the West and drive tack in peg 5 chs. North on the true meridian thus established. The magnetic bearing of said true meridian at 7 a. m., 1 m. t., is N. 12° 24' W. The angle thus determined reduced by table on page 100 of
[fol. 605] the 1894 manual gives mean mag. decl. 12° 21' E. I then turn angle 90° and run

East on true line on boundary line bet. Colorado and New Mexico.

1.00 E. edge of mesa, bears N. and S.
Descend.

13.43 Arroyo 50 links wide, in bottom of canon, course N. Ascend.

18.00 Point of mesa bears N. and S.
Descend.

33.00 Arroyo in bottom of canon 75 links wide, course S. Ascend.

48.43 To point of intersection of line bet. Rs. 36 and 37 E. heretofore described.
Ascend.

56.33 W. edge of mesa, bears N. W. and S. E.; thence over mesa covered with scattering pinons.

Chains

58.40 E. edge of mesa, bears N. W. and S. E.
Descend slope.
68.00 Bottom of slope, bears N. and S.
80.00 Set sandstone 20 + 15 + 9 ins. 15 ins. in ground for 1 mile stone on North boundary of New Mexico East of the Macomb monument at a point (7) links N. of tangent to parallel marked 1 M. E. on W., N. M. on S. and Col. on N. faces; dug pits 24 + 18 + 12 ins. E. and W. of cor. crosswise of line 4 ft. dist. and raised mound of earth and stones 4 ft. base, 2 ft. high N. of cor.
Land mountainous.
Soil 4th and 3rd rate.
Timber scattering pinons and cedars.
Mountainous land 80 chs.

Thence East on true line on 2nd Mile East of Macomb monument, along foot of mesa.
30.00 Amongst large boulders at foot of North slope of [fol. 606] mesa.
50.00 Leave large boulders.
80.00 Set sandstone 20 + 15 + 6, ins. 15 ins. in ground for 2nd mile stone on N. Mdy. of N. Mex. East of Macomb monument at (2.8) links North of tangent to parallel, marked 2 M. E. on W., N. M. on S. and COL. on N. faces; dug pits 24 + 18 + 12 ins. E. and W. of cor. 4 ft. dist. crosswise of line and raised mound of earth 4 ft. base, 2 ft. high N. of cor.
Land rolling valley and mesa slope.
Soil 2nd and 3rd rate.
No timber.
Mountainous land 50. chs.

Thence East on true line on fract'l 3rd mile East of Macomb monument over rolling valley.
40.53 Intersect Cimarron Meridian 14.14 chs. South of monument erected by Smith and Chaney. A sandstone 50 + 14 + 14 ins. above ground marked, '103° W. L.' on S., '37° N. L.' on E. 'Colorado' on N., and '1881' on W. faces, as described in field notes furnished me by the Surveyor General, at a point (5) links N. of tangent to parallel. I set sandstone 60 + 12 + 12 ins. 36 ins. in ground, for closing cor. of boundary line between Colorado and New Mexico, on Cimarron Meridian as per special instructions from the Surveyor General, marked 'N. E. Cor. N. M.' on S.,

C. C.

Chains

C. M. 6n E. 1900 on W. and Cobo. on N. faces. dug pits 30 + 24 + 12 ins. N. and S. of cor. 4 ft. dist. and
[fol. 607] W. of cor. 8 ft. dist and raised mound of earth and stones 4 ft. base, 2 ft. high W. of cor.

From + marked on top of stone the cor. to secs. 18 and 19 T. 6 N., R. 1 E. in Oklahoma, which is in plain sight, bears S. 1 M. 28.60 chs. dist.
A butte bears S. 59° 09' E. 3 miles dist.
A Butte bears S. 40° 35' E. 1½ M. dist.
Sugar Loaf Butte bears S. 62° 50' W. 1½ miles dist.
Land rolling valley.
Soil 2nd rate.
Good grass.
No timber.

June 29, 1900.

* * * * * * *

"Final Oath of U. S. Deputy Surveyor.

I, Levi S. Preston, U. S. Deputy Surveyor, do solemnly swear that in pursuance of a contract received from Quinby Vance, Esq., U. S. Surveyor General for New Mexico, bearing date of the twenty-fifth day of October, 1899, I have well, faithfully, and truly in my own proper person, and in strict conformity with the instructions furnished by the U. S. Surveyor General for New Mexico, the Manual of Surveying Instructions and the laws of the United States, surveyed all those parts or portions of the boundary line between Colorado and New Mexico, and retracement of part of the N. bdy. of New Mexico, of the principal base and meridian in the Territory of New Mexico, which are represented in the foregoing field notes as having been surveyed by me and under my direction; and I do further solemnly swear that all the corners of said survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions and the special written instructions of the U. S. Surveyor General for New Mexico, and in the specific manner described in [fol. 608] the field notes, and that the foregoing are the true field notes of such survey; and should any fraud be detected I will suffer the penalty of perjury under the provisions of an act of Congress approved August 8, 1846.

Levi S. Preston, U. S. Deputy Surveyor.

Subscribed by said Levi S. Preston and sworn to before me this 30th day of July, 1900. A. L. Hobbs, Probate Clerk. by W. M. Oliver Deputy. R. S. (Seal.)

"Approval.

Office of the U. S. Surveyor General.

Santa Fe, N. Mex., May 7th, 1901.

The foregoing notes of the survey of a portion of the Boundary Line between Colorado and New Mexico, and retracement of a portion of the North Bdy. of New Mexico, as executed by Levi S. Preston, U. S. D. S., under his Contract No. 330, dated Oct. 25, 1900 [1899], having been critically examined, and the necessary corrections and explanations made, the said field notes and the surveys they describe, are hereby approved.

Quinby Vance, U. S. Surveyor General.

"I certify that the foregoing transcript of the field notes of the survey of a portion of the boundary line between Colorado and New Mexico, and retracement of a portion of the North boundary of New Mexico, in the Territory of New Mexico, has been correctly copied from the original notes on file in this office.

Quinby Vance, U. S. Surveyor General."

[fol. 609] SUPREME COURT OF THE UNITED STATES

[Title omitted]

STIPULATION AND ADDITION TO AMENDED BILL AND AMENDED CROSS-BILL—Filed Mar. 18, 1924

Come now the parties above named, and by their respective solicitors and counsel, stipulate and agree as follows:

1. That the field notes of Elliot N. Darling together with the oaths and certificates accompanying the same, and also the veto message of President Roosevelt, attached to the original answer and cross-bill filed herein by said State of Colorado, may be considered by the Court as though the same were attached to and made a part of the amended answer and amended cross-bill of the state of Colorado.

2. That the field notes of John J. Major and the field notes of Levi S. Preston, attached to said amended answer and amended cross-bill, shall be considered as offered and admitted in evidence as they appear in said amended answer and amended cross-bill, without being further offered, admitted, identified or authenticated.

[fol. 610] 3. That the evidence heretofore taken in this cause shall be received and considered by the Court as though the same had been taken subsequently to the filing of defendant's amended answer and amended cross-bill.

4 It is stipulated and agreed that the following facts may be taken and considered by the court as true, to the same extent as though proof thereof had been made by competent evidence:

(a) That on June 2nd, 1873, John J. Major, a surveyor and astronomer, entered into a contract with the Acting Commissioner of the General Land Office of the United States, among other things, to "well, truly and faithfully, by astronomical observations and geodetic measurements, establish in its true position on the surface of the earth so much of the South boundary of the Territory of Colorado as lay between the 25th meridian of longitude West from Washington and the 103rd meridian of longitude West from Greenwich, as defined by Section 1st of the Act of Congress entitled "An Act to Provide a Temporary Government for the Territory of Colorado," approved Feb. 28, 1861, Stats. at Large, Vol. 12, page 172, and that in pursuance of said contract, said Major thereafter surveyed and marked the line of said boundary on the surface of the earth from the southwest corner of Kansas westerly to the Macomb Monument (also a distance of one mile and sixty-two chains westerly from said Macomb Monument to the Johnston Monument) as appears by that portion of the record and field notes of his work and the certificate of examination and approval by the Commissioner of the General Land Office attached to the amended answer and cross bill of the State of Colorado herein.

(b) That Levi S. Preston, a Deputy United States Surveyor, working under and in pursuance of an agreement and special instructions, [fol. 611] dated October 25th, 1899, with the Surveyor General of the United States for New Mexico, theretofore approved February 26, 1900 by the Commissioner of the General Land Office of the United States, retraced, remarked and re-established the survey and line theretofore established by John J. Major in 1874, from the Macomb Monument easterly for a distance of 2 miles and 40.53 chains to the intersection of said line with the Cimarron meridian theretofore established by Chaney and Smith in 1881, at which point, in pursuance of said contract and instructions, said Preston established a monument, known as the "Preston Monument," as and for the northeast corner of the Territory of New Mexico and as and for the intersection of the 37th parallel with said Cimarron Meridian, which meridian is the boundary line between the States of Oklahoma and New Mexico, and that a copy of the field notes of said retracement and survey by said Preston, accepted and approved in 1901, are attached to the Amended Answer and Cross-Bill of the defendant herein.

(c) That, except as may otherwise be shown by the record in this case as now made, for more than thirty years the position of the Darling line, from the Macomb Monument to the intersection of the 37th parallel North latitude with the 103th meridian of longitude West from Greenwich, remained undisputed and the correctness of its technical execution unquestioned, and as so established, the said Darling line has been recognized and acquiesced in by the United

States, by the Territory and State of Colorado, by the Territory of New Mexico and by the State of New Mexico except as otherwise indicated by the bringing of this suit, and has been and is now recognized and accepted by the Land Department of the United States, in its surveys of the public domain, as the boundary line be- [fol. 612] tween Colorado and New Mexico from the Macomb Monument westward, except so far as may otherwise appear (if it does otherwise appear) by the record in this case; that from 1868 to the present time the Territory and later the state of Colorado, defendant herein, has claimed and exercised dominion and sovereignty, and now claims the same, over the territory down to the boundary as established by said Darling and no farther, that county lines have been formed, towns and settlements have grown up, school districts, election districts, voting precincts, and land districts and water districts have been created with reference to said line; public officers have been elected, property has been assessed and taxes levied and collected under the authority of the Territory and State of Colorado, and its courts of both civil and criminal jurisdiction have exercised jurisdiction in all places north of said Darling line and the Territory and State of New Mexico has exercised like jurisdiction in all places south of said line; that government postoffices have been established as being in Colorado when north of said line and as in New Mexico when south of said line, and that public land surveys on both sides of said line have been closed thereon, lands have been disposed of, rights acquired and political boundaries in both Colorado and New Mexico have been fixed by reference to said line.

(d) That since 1874, the Major survey and marking of the 37th parallel of North latitude from the southwest corner of Kansas westward to the Macomb Monument has been the recognized and accepted South boundary of Colorado between said points and since the acceptance of the Preston survey, retracement and remarking of said line, in the year 1901, said line as remarked and retraced by Preston between said Macomb Monument and the Preston Monument, at the [fol. 613] intersection of said parallel with the Cimarron Meridian, has been and now is the recognized and accepted boundary between Colorado and New Mexico at all points between said Monuments.

3. It is further stipulated and agreed that the map or plat of fractional township 32, north of range 37 east of the New Mexico Principal Meridian, and showing adjoining sections in Oklahoma and Colorado, the location of the Macomb Monument and the location of the Preston Monument, the northeast corner of New Mexico, certified October 22, 1923, by Geo. R. Wickham, Acting Commissioner of the General Land Office, under the seal of the United States General Land Office, to be a true exemplification from the original on file in his office, may be admitted in evidence and considered by the Court as though offered before one of the examiners appointed by the Court and may be marked and introduced as "Colorado's Exhibit 22."

6. Whereas the defendant, through oversight, has heretofore failed to offer in evidence a letter dated July 11, 1922, with attached memorandum, written by E. Lester Jones, Director of the U. S. Coast and Geodetic Survey, Department of Commerce, Washington, D. C., addressed to William R. Ramsey, and desires to have the same appear as a part of the evidence in this case;

It is stipulated and agreed that said letter, which is hereto attached and marked "Colorado's Exhibit 23" shall be taken and received in evidence the same as though it had been offered before one of the examiners appointed by the Court, subject to complainant's objection that it is irrelevant and incompetent as evidence, because it sets forth the evidence of a witness not under oath nor produced for cross-examination, and can be considered only as a statement of the opinions and views of a person whose official position seems to give them [fol. 614] weight, the same as they might have if he had published them in a book treating of the same subject about which he writes.

Dated February 29, 1924.

The State of New Mexico, by Frank W. Clancy, Its Special Counsel. The State of Colorado, by Wayne C. Williams, Its Attorney General. Chas Roach, Deputy Attorney General. Oliver Dean, Assistant Attorney General. Delph E. Carpenter, of Counsel for the State of Colorado.

[fol. 615] COLORADO'S EXHIBIT No. 23

Address the Director U. S. Coast and Geodetic Survey, and refer to No. 15/AE.

Department of Commerce

U. S. Coast and Geodetic Survey

Washington

July 11, 1922.

Mr. William R. Ramsey, Washington, D. C.

DEAR SIR: In response to your verbal inquiry I am glad to furnish you the following information regarding the accuracy of the astronomic observations in determining lititude.

In determining latitude by astronomic methods, the principle followed is to determine the angle between a known celestial body, such as the sun or a star, and the observer's zenith. Different instruments are used and different degrees of accuracy are obtaind, yarying from an error of one or two miles in sextant observations at sea to an error of 10 to 20 feet with large instruments on shore. This error of ten-to twenty feet must be understood to mean that any one station could be reoccupied and the observed latitude would agree with the preceding latitude within that distance.

It is usual to conceive of the earth as being marked off into geographical compartments by parallels and meridians which are

smooth curves, properly spaced upon the ellipsoidal surface of the earth. As a matter of fact, the parallels and meridians are uniform in curvature and properly spaced only when located by triangulation and computed upon an ellipsoid which closely fits the shape of the portion of the earth delineated. When located by astronomic methods they are uniform neither in curvature nor in spacing. The reason for this is easily explained.

In astronomical observations for latitude or longitude, the observer's zenith, which serves as a reference point for the angular measures to the sun or star, is determined by the levels on the astronomical instrument for, when the instrument is "leveled," it is in position to measure the zenith distance of a star. These levels, in turn, mark the direction of the force of gravity at that point, or the direction indicated by a plumb-line freely suspended. If, for any reason, the plumb-line is not perpendicular to the mean surface, then the position determined astronomically will not be in proper relation to adjacent points not so affected. It has long been known to geographers and geodesists that nearby mountain masses and differences in the density of the earth's crust would so materially affect the direction of the plumb-line that an astronomic latitude or longitude would show a discrepancy of a half-mile or more, in extreme cases, when compared to the mean values obtained by triangulation methods.

[fol. 616]

The discrepancies in geographical position of a point, due to the erroneous direction of gravity, are called deflections of the vertical. The magnitude of some of these deflections in the region adjacent to Colorado and New Mexico will be seen by a comparison with some of the latitudes and longitudes obtained by precise triangulation which has been reduced to the North American Datum. This North American Datum was adopted as a reference datum for all triangulation in the United States and was so chosen as to bring the continental area of the United States, as a whole, into its proper geographical relation in lititude and longitude. When astronomic latitudes and longitudes are compared to the latitudes and longitudes obtained by triangulation, they show at once the deflections in the vertical and the direction of such deflections.

Taking the region in the vicinity of Colorado Springs (See page 12, Figure of the Earth and Isostasy from Measurements in the United States), we find that a station in that city has a deflection in a north and south direction of $-3''.3$ while one on Pike's Peak has a deflection of $+0''.96$, a difference within a few miles of $4''.2$, which would correspond to a distance on the surface of the earth of about 425 feet. East of Colorado Springs, two stations 60 miles apart exhibit a latitude discrepancy equal to 240 feet while if we compare Pike's Peak with a station 30 miles east of it, we find a comparative discrepancy of 680 feet.

The entire western part of the United States has such extremes of elevation and so many variations in the density of the earth's crust that it is very usual to find a 2" or 3" variation, in the deflection of the vertical, corresponding to errors of 200 or 300 feet in distance

on the earth's surface, between points only a few miles apart, wh
such points are determined astronomically. The effects of these
flections are easily seen when we compare the latitudes and lon
tudes on the North American Datum of some of the state bounda
monuments in the western part of the United States with their s
posed astronomic positions.

A boundary monument on the northern boundary of the state
Kansas is nearly 880 feet north of the 40th parallel while a mon
ment on the southern boundary of the state is over 500 feet south
the 37th parallel, thus making the state a quarter of a mile wid
than was intended by its constitutional limits. A boundary mon
ment between Colorado and Wyoming is almost 600 feet too far sou
when referred to the North American Datum. A monument betwe
South Dakota and Nebraska is about 650 feet too far north and t
monument at the northeast corner of Wyoming is over 800 feet t
far south. Some of the boundary meridians located by astronom
methods show an even larger divergence from their true positio
than do the boundary monuments on parallels. A boundary mon
ment between Colorado and Utah is more than 2,200 feet too far we
[fol. 617] and others have been found as much as 3,300 feet fro
the location indicated as the true one by geodetic methods.

One additional effect of these deflections of the vertical is to
noted in the fact that a boundary line located by astronomic metho
will form a zigzag line. The direction of the line is changed at ea
astronomic station. This effect is shown on the western boundary
Montana which, at one point, is 1,900 feet east of where it should
on the North American Datum while 150 miles south, on the sam
boundary and supposedly on the same meridian, another bounda
monument is 3,300 feet east, a change of 1,400 feet in easting in 1
miles. The boundary line between Nevada and Utah exhibits a li
divergence from a proper direction for, in latitude 39° 10', a boun
ary monument supposed to be on the 37th meridian west of Was
ington is about 1,040 feet too far east, while in latitude 41° 20', a
other monument is 3,300 feet too far east.

It will thus be seen that the incongruities inherent in an astr
nomic determination of a boundary line are, to a certain extent, ou
side the power of the observer to correct. It will also be seen that
will be impossible to retrace an old line by such methods unless t
same astronomic stations are occupied on the rerunning as on t
original survey. This will explain, in large part, the reason wh
successive surveys of a boundary line do not agree.

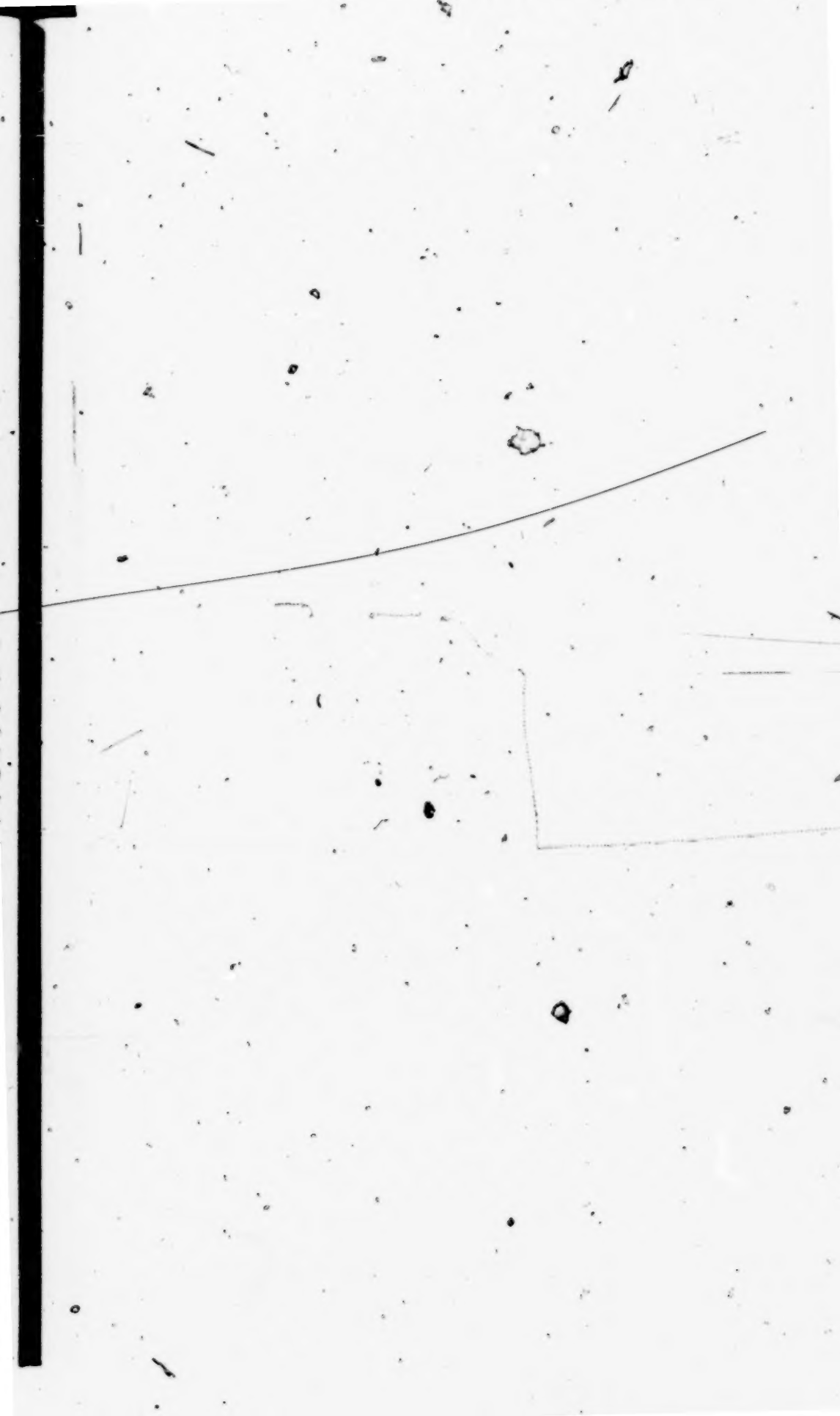
Respectfully yours, E. Lester Jones, Direct

[fol. 618] Memorandum

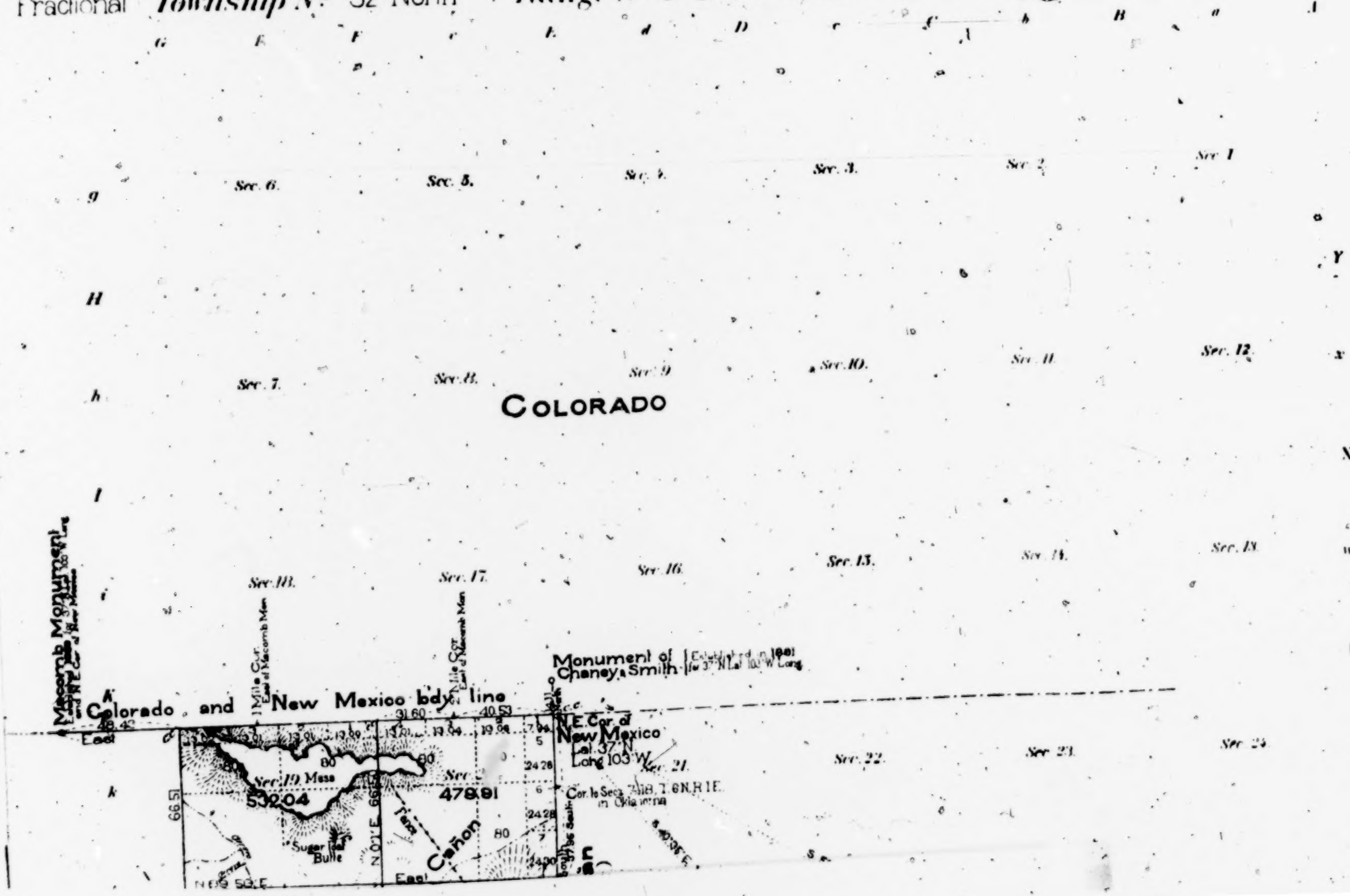
For explanation of North American Datum, pages 7-9, Special Pu
lication No. 74.

For some values for the deflection of the vertical in the meridi
(the direction affecting latitude observations) page 12 "Figure of t
Earth and Isostasy from Measurements in the United States."

[fol. 619] [File endorsement omitted.]



Fractional *Township No.* 32 North : *Range No.* 37 East of the New Mexico Principal *Meridian*



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[fol. 620] COLORADO'S EXHIBIT No. 22

"B." J. W.

Department of the Interior

General Land Office

Washington

October 22, 1923.

I hereby certify that the annexed copy of plat, is a true and literal exemplification from the original on file in this office.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

Geo. R. Wickham, Assistant Commissioner of the General Land Office. (Seal United States General Land Office.)

(Here follows side folio page 621.)

[fol. 622] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MOTION FOR LEAVE TO FILE REPLICATION AND ANSWER TO CROSS-BILL, CONSENT OF DEFENDANT, AND ALSO SAID REPLICATION AND ANSWER.—Filed April 1, 1924.

[fol. 623] Now comes the complainant by its special counsel, and moves the Court for leave to file its replication to the amended answer of defendant and its answer to the amended cross bill of defendant.

The State of New Mexico, by Frank W. Clancy, its Special Counsel.

It is hereby stipulated and agreed by the State of Colorado that the complainant may have leave to file herein its replication to the amended answer of defendant, and its answer to the amended cross-bill of defendant, and the defendant acknowledges receipt of a copy of foregoing motion of complainant for leave to file said replication and answer, and waives any other or further notice of said motion and consents that the same may be submitted and granted without further delay.

The State of Colorado, by Wayne C. Williams, its Attorney General. Charles Roach, Deputy Attorney General. Oliver Dean, Assistant Attorney General. Delph E. Carpenter, of Counsel for the State of Colorado.

[fol. 624] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

REPLICATION TO AMENDED ANSWER AND ANSWER TO AMENDED CROSS-BILL

The Replication of said Complainant to the Amended Answer of said Defendant

This repliant, saving and reserving to itself all and all manner of advantage of exception which may be had and taken, to the manifold errors, uncertainties and insufficiencies of the Amended Answer of the said defendant, for replication thereunto, saith that it doth and will aver, maintain and prove its said bill to be true, certain and sufficient in the law to be answered unto by said defendant, and that the Amended Answer of the said defendant is very uncertain, evasive and insufficient in the law to be replied unto by this replicant; without this, that any other matter or thing in the said Amended Answer contain material or effectual in the law, to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied, is true; all which matters and things this replicant is ready to aver, maintain and prove, as this honorable court shall direct, and humbly prays as in and by its said bill, it hath already prayed.

The State of New Mexico, by Frank W. Clancy, its Special Counsel.

[fol. 625] The Answer of the said Complainant, the State of New Mexico, to the Amended Cross-bill of the said Defendant The State of Colorado

The said complainant, the State of New Mexico, hereby waives the issuance and service of any process to require it to appear and answer the said cross-bill, and now and at all times hereafter reserving all manner of benefit and advantage of exception to the many errors and insufficiences in said amended cross-bill contained for answer thereunto, or unto so much or such parts thereof as this complainant is advised is material for it to make answer unto; answers and says that it denies that the true boundary line between plaintiff and defendant is described in defendant's amended answer and denies that such true boundary is fully or correctly shown or delineated in the field notes or survey made in 1868 by Eliud N. Darling, or in the field notes or survey of John J. Major, or in the field notes or survey of Levi S. Preston, but it admits that Howard B. Carpenter in making his survey destroyed and obliterated some of the monuments and corners established by said Darling in making his said survey as he, the said Carpenter, was instructed and ordered to do by the acting Commissioner of the General Land Office in the special instructions by said acting Commissioner given to said Carpenter under date of

July 7, 1902, without this that any other matter or thing in said amended cross-bill contained or charged material for it to make answer to, and not herein sufficiently answered, avoided or denied, is true to the knowledge or belief of this complainant.

All which matters and things this complainant is ready to aver and prove as this Court shall direct and prays that said amended cross-bill be dismissed.

The State of New Mexico, by Frank W. Clancy, its Special Counsel.

[64 626] SUPREME COURT OF THE UNITED STATES.

[Title omitted]

MINUTE ENTRY OF ORDER GRANTING LEAVE TO FILE AMENDED ANSWER AND CROSS-BILL—April 8, 1924.

On motion of Mr. Clyde C. Dawson, in behalf of Mr. Wayne C. Williams, Mr. Charles Roach, Mr. Oliver Dean, and Mr. Delph E. Carpenter for the defendant, leave was granted to file an amended answer and cross-bill herein.

[64 627] SUPREME COURT OF THE UNITED STATES.

[Title omitted]

JOINT MOTION TO PUBLISH TESTIMONY AND SET CASE FOR HEARING—Filed April 15, 1924.

Now come the said parties by their respective counsel, and jointly move the court for leave to open, file and publish the testimony in said cause, which has been certified by the examiners designated in writing by agreement of said parties, pursuant to the order of the Court made herein on January 30, 1922, and has been by said examiners sent to the Clerk of this Court; and also to set the case for hearing at the earliest practicable day in the next term of the Court, to be begun on the first Monday in October, 1924.

The State of New Mexico, by Frank W. Clancy, Its Special Counsel. The State of Colorado, by Wayne C. Williams, Its Attorney General. Charles Roach, Deputy Attorney General. Oliver Dean, Assistant Attorney General. Delph E. Carpenter, of counsel for the State of Colorado.

[64 628] [File endorsement omitted.]

[fol. 629] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MINUTE ENTRY OF ORDER GRANTING LEAVE TO FILE REPLICATION AND ANSWER TO CROSS-BILL AND REPLICATION TO ANSWER—April 16, 1924

On motion of Mr. A. A. Jones in that behalf leave was granted to file replication and answer to the cross-bill.

[fol. 630] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MINUTE ENTRY OF SUBMISSION OF MOTION TO OPEN, FILE AND PUBLISH TESTIMONY, ETC.—May 12, 1924

The motion to open, file and publish the testimony in this cause and to set the cause for hearing, was submitted to the consideration of the Court by Mr. A. A. Jones in behalf of counsel.

[fol. 631] SUPREME COURT OF THE UNITED STATES

[Title omitted]

MINUTE ENTRY OF ORDER GRANTING MOTION TO OPEN TESTIMONY, ETC., AND SETTING CAUSE FOR HEARING—May 26, 1924

On consideration of the motion for leave to open the testimony and to set this cause for hearing,

It is now here ordered by this Court that the said motion be, and the same is hereby, granted; and the cause assigned for argument on Monday, November 10th, next, after the cases heretofore assigned for that day.

[fol. 632] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

TESTIMONY TAKEN AT WASHINGTON, D. C., BEFORE DOUGLAS O. MORGAN, EXAMINER, JULY 3, 5, AND 6, 1922—Received Sept. 11, 1924

(20 exhibits accompanying.)

[fol. 633] July 3, 1922—2 o'clock p. m.

Appearances: Frank W. Clancy, Esq., for the State of New Mexico; Hon. Victor E. Keyes, Attorney General, and William R. Ramsey, Esq., Assistant Attorney General for the State of Colorado.

The parties to the above-entitled cause, by their respective counsel above named, appeared at the Continental Building, Washington, D. C., on this date, in pursuance of a stipulation entered into between counsel, at the instance of the defendant, and neither party having any testimony to present this afternoon, the hearing was adjourned [fol. 633] until Wednesday, July 5, 1922, at 2 o'clock p. m.

[fol. 634] [Title omitted]

Testimony Taken at Washington, D. C., Before Douglas O. Morgan, Examiner

Department of the Interior,
Washington, D. C., July 5, 1922—2 o'clock p. m.

Appearances: Frank W. Clancy, Esq., for the State of New Mexico; Hon. Victor E. Keyes, Attorney General, and William R. Ramsey, Esq., Assistant Attorney General, for the State of Colorado.

The Examiner: Gentlemen, we will first spread upon the record the order of the Supreme Court of the United States, heretofore passed in this case, dated January 30, 1922, authorizing the taking of testimony in this case, and the stipulation of the parties, made in pursuance of that order, and approved by the Court on May 15, [fol. 635] 1922, designating me as examiner to take the testimony in the case presented at Washington, D. C., together with my oath to faithfully perform my duties as such examiner, taken as required by said order.

The orders and oath referred to are as follows:

[fols. 636 & 637] Order granting motion for leave to file stipulation as to taking testimony omitted, printed side page 573 ante.

[fol. 638] In the Supreme Court of the United States

[Title omitted]

Stipulation Designating Examiners to Take Proofs

In pursuance of the order of the Court, made on January 30, 1922, the parties to the above-entitled cause hereby agree, subject to the approval of the Court as provided in said order, to designate, and hereby do designate, the following-named persons as examiners to take the proofs in said cause, as provided in the said order of the Court, at the several places mentioned in connection with said names: Henry C. Luther, of Denver, Colorado; Douglas O. Morgan,

of Washington, D. C. Ethel F. Stevenson, of Santa Fe, New Mexico.

Frank W. Clancy, Counsel for Complainant. Victor E. Keyes, Attorney General of Colorado, for Defendant.

(Approved by the Court and permission to file given May 15, 1922.)

[fol. 639] Oath of Douglas O. Morgan omitted; printed side page 585 ante.

[fol. 640] The Examiner: There will also be spread upon the record the stipulation between the parties pursuant to which these meetings are held.

Said stipulation is as follows:

IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

STIPULATION RE TAKING TESTIMONY

It is hereby stipulated by the parties to the above-entitled cause, by their respective attorneys and counsel, that in the City of Washington, D. C., on July 3d, A. D. 1922, such testimony may be taken as may be offered by the parties hereto or either of them, and continued from day to day or from time to time, until completed.

Dated and signed this 12th day of June, A. D. 1922.

Frank W. Clancy, Counsel for Complainant. Victor E. Keyes, Attorney General of Colorado; W. R. Ramsey, Assistant Attorney General, Counsel for Defendant.

[fol. 641] The Examiner: The following stipulation has also been filed with me, which it is understood the parties have agreed to:

"It is stipulated by counsel for the respective parties in this case that any and all official plats, maps, surveys, resurveys, official letters, documents, instructions, or other Government records pertaining to the issues herein, may be received in evidence and considered as part thereof, without any further or other authentication than may be apparent on the face thereof, by the identification thereof, or by the introduction of duly certified copies of the same."

Is that stipulation agreed to by both parties?

Mr. Keyes: Yes.

Mr. Clancy: Yes.

The Examiner: It is not signed.

Mr. Keyes: It can go in the record as a stipulation agreed to orally by counsel.

Mr. Clancy: Before we begin the taking of any testimony, I want to state this on the record, to explain the apparent incongruity of beginning with evidence on behalf of the defendant:

As far as I am at present advised, all testimony for the complainant can be taken at Denver or Santa Fe, and will be there taken, which will be more convenient and less expensive for both sides.

I appear here at this time in pursuance of a stipulation made at the request of defendant's counsel, and not with the intention of [fol. 642] presenting any evidence on behalf of the complainant; and I am ready to proceed with the testimony presented on behalf of the defendant, in order to accommodate defendant's representatives.

The Examiner: In view of that statement, are counsel on behalf of the defendant ready to proceed?

Mr. Keyes: According to stipulation heretofore entered into, examiners were appointed in Washington, Denver and Santa Fe. I understood that it was the expectation of both parties to take testimony in each of the respective places.

It was the desire of Colorado to have the testimony taken at as early a date as possible, and some time in June was suggested by counsel for Colorado for the taking of testimony in Washington. But to meet convenience of counsel for New Mexico, we agreed to a later date, namely, the 3d of July, 1922, at which date it was stipulated that such testimony should be taken as may be offered by the parties hereto, or either of them.

If no testimony is now offered by New Mexico it is the desire of Colorado to proceed at this time with the taking of certain testimony in support of the answer and cross-bill.

Mr. Clancy: After that statement by the Attorney General of Colorado, which on its face would seem to put me in the position of failing to present testimony for the complainant, I desire to say that when it was suggested to me that we should take testimony here in June, I protested that I had no testimony to take at this time in Washington, but that I was perfectly willing to agree to the [fol. 643] taking of testimony if that would suit the convenience of counsel for Colorado.

Mr. Keyes: In accordance with stipulation heretofore entered into, I now offer and introduce in evidence certain portions of an Act of Congress approved March 2, 1867, entitled, "An Act making appropriations for sundry civil expenses of the Government for the year ending June 30, 1868, and for other purposes, found in 14 Statutes-at-Large. The following from page 457:

EXHIBIT IN EVIDENCE

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums be, and the same are hereby, appropriated for the ob-

jects hereafter expressed for the fiscal year ending the 30th of June, 1868, namely:"

And the following from page 466:

"For the survey of the thirty-seventh parallel of north latitude, so far as it constitutes the northern boundary of the Territory of New Mexico, estimated, 327 miles at not exceeding sixty dollars per mile, nineteen thousand dollars."

[fol. 644] WALTER T. PAINE, a witness called by and on behalf of the State of Colorado, having been first duly sworn according to law, was examined and testified as follows:

Direct examination.

By Mr. Keyes:

Q. What is your name?
A. Walter T. Paine.
Q. What official position do you hold?
A. Assistant chief of surveying division of the General Land Office.
Q. How long have you held that position?
A. About twenty-five years.
Q. Were you with the same Department prior to that time?
A. Yes, I have been in the General Land Office 31 years and a half, of which I have spent 28 years and a half in the surveying division.
Q. Are you familiar with the maps, surveys and other documents of the General Land Office of the United States?
A. I am familiar with a very great number of those records. My duties make it necessary that I should be familiar with either the records or the places where they may be found.
Q. Are you familiar with the maps, surveys, contracts, instructions and other documents on file in the United States General Land Office pertaining to the boundary between Colorado and New Mexico?
A. Generally so, yes.
[fol. 645] Q. Have you any objection to my marking this document (indicating) "Colorado Exhibit No. 1"?
A. Yes, but that could be done on a certified copy.

Mr. Clancy: Any copy you will present and give to Mr. Morgan the examiner I will not object to, whether it is certified or not.

By Mr. Keyes:

Q. Then I will say "this document which I will designate as Colorado Exhibit No. 1", I will ask you to state what that is? (Handing paper to witness.)

Mr. Clancy: Does it not show for itself what it is? We need not take any testimony to show that. I am not going to object to it in any way.

A. My examination of the paper in question has led me to conclude that it was the original contract and bond dated May 22, 1868 between the Commissioner of the General Land Office, Joseph S. Wilson, and Ehud N. Darling, astronomer and surveyor for the survey of the Northern Boundary of New Mexico.

Mr. Keyes: I now offer and introduce in evidence this contract and bond. It is understood that a copy of this, or any other official documents hereafter introduced, may be substituted for the original, and that the examiner will mark such copies as exhibits, instead of the original.

Mr. Clancy: Yes.

(The copy of the contract and bond last above referred to were received in evidence and marked "Colorado Exhibit No. 1".)

By Mr. Keyes:

Q. I now hand you a book bound in buckram, entitled, "Letters [fol. 646] to Surveyor General of New Mexico, August 14, 1851, to May 15, 1869", and ask if that is part of the original records of the General Land Office (handing book to witness).

Mr. Clancy: I admit anything you want about that.

A. (Examining book.) I want to satisfy those who are present that what I indicate as of my own personal knowledge, has been gained by my necessary contact with these records during the time that I have been engaged on my present duties, and that whatever I may say is my own conclusion personally on that fact.

In answer, therefore, to the question presented, I will answer, Yes.

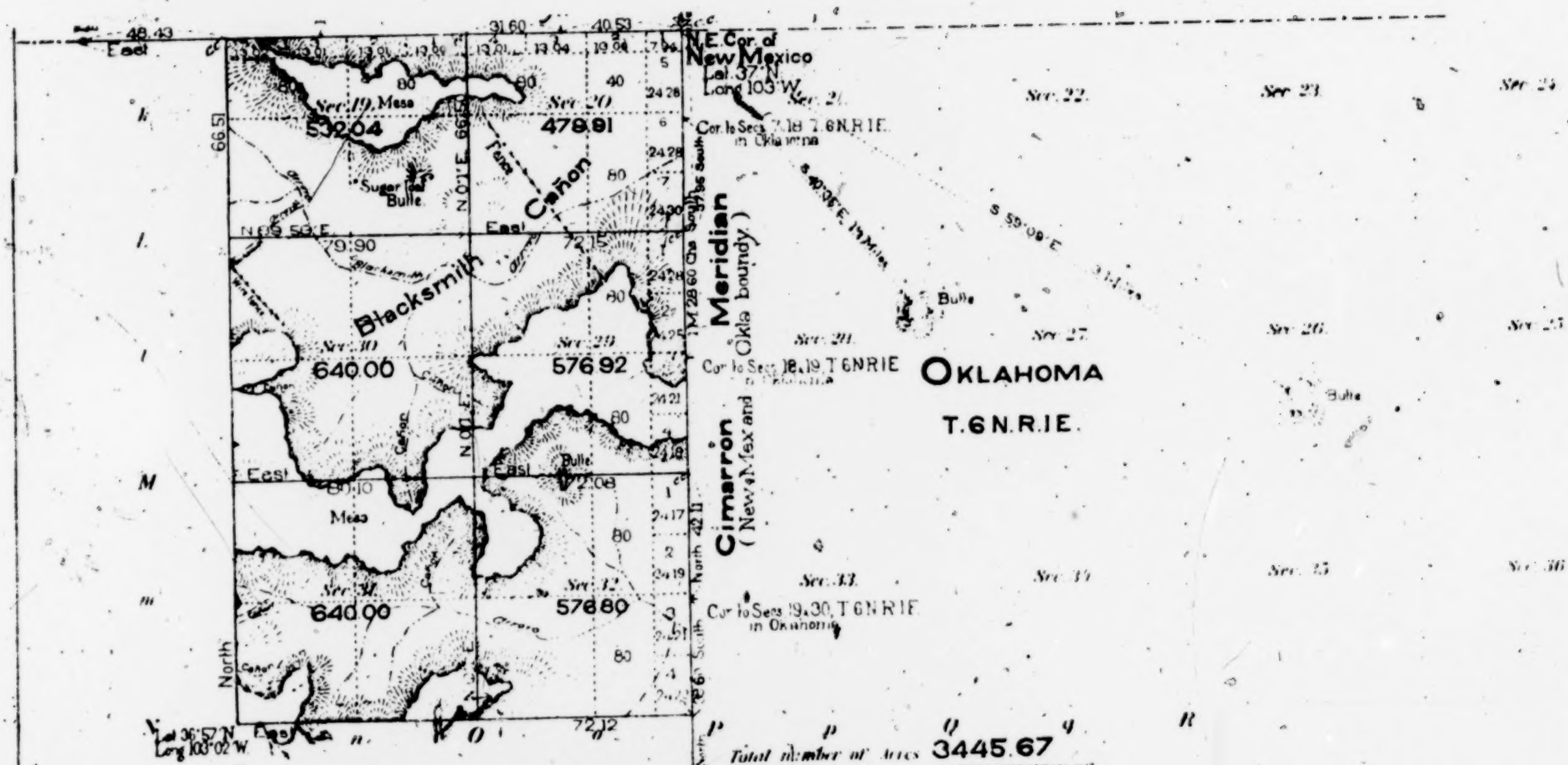
By Mr. Clancy:

Q. As I understand from what Mr. Keyes said, these are recorded copies of letters that have been sent to the Surveyor-General?

A. Yes, sir.

Mr. Clancy: We will be perfectly willing to agree that they are copies of genuine letters that were sent, if that will facilitate it in any way. If I did not believe they were, I could not show the fact that they were not, and I would not try.

Mr. Keyes: I now offer and introduce in evidence a copy of a letter found on page 489 of said book, from Joseph S. Wilson, Commissioner of the General Land Office, to Ehud N. Darling, dated May 22, 1868, transmitting to Mr. Darling said contract and bond. When a copy of this letter, in accordance with our stipulation, has been given to the examiner, I ask that it be marked "Colorado Exhibit No. 2".



Surveys Designated	By Whom Surveyed	Date of Contract No. 336	Amount of Surveys M.	Ch.	Lk.	When Surveyed	Mean Mag. Var.
Township lines	Levi S. Preston	Oct. 25, 1899	2	66	51	June 29, 1900	12°21' E.
Subdivisions	. . .	. . .	6	50	73	June 30, "	12°20' E.
Col. & N. M. Bdy. (E. & Mesa Mer.)	. . .	. . .	2	40	53	June 29, "	12°21' E.
Connections	. . .	. . .	3	42	80	June 2 - 30	12°21' E.
Cimarron Meridian	Chaney & Smith	Aug. 26, 1881				Oct. 19 - Nov. 6, 1881	

Postal Rec'd 12 1902. C.L.D.

The above Map of Township No. 32 North of Range No. 37 East of the Principal Meridian in New Mexico is strictly conformable to the field notes of the survey thereof on file in this Office which have been examined and approved

Surveyor Generals Office
Santa Fe, N.M. May 7, 1902

Surv. Gen'l

(The letter referred to was received in evidence, and a copy thereof [fol. 647] was marked "Colorado Exhibit No. 2").

Mr. Keyes: I also offer in evidence copy of letter dated May 26, 1868, written to Ehud N. Darling, by Joseph S. Wilson, with instructions as to the making of said survey, said letter being found beginning at page 199, and ending at the bottom of page 501 of said book, and ask that when a copy of same has been submitted to the examiner in accordance with our stipulation, it be marked "Colorado Exhibit No. 3".

(The letter referred to was received in evidence, and a copy thereof was marked "Colorado Exhibit No. 3".)

By Mr. Keyes:

Q. Mr. Paine, will you state whether, from the records of the Land Office, the instructions given to Mr. Darling for the making of that survey were carried out?

A. They were.

Q. I hand you a book purporting to be the field notes of the survey of Ehud N. Darling, and ask you whether or not that is the original? (Handing book to witness).

A. (Examining book.) I recognize it as such, containing on the fly leaf "Original for General Land Office, Received with E. N. Darling's letter of April 14, 1869", and on the same page it is indicated that a copy was sent to the Surveyor General for Colorado and the Surveyor General for New Mexico May 6, 1869, subsequent to April 30, 1869, when these field notes were approved by Joseph S. Wilson, Commissioner of the General Land Office.

Q. I want you to read that approval.

Mr. Clancey: I understand that these field notes and the approval of the survey are set out in print in the answer of the defendant, and as far as I am concerned, as I have heretofore suggested to [fol. 648] counsel for Colorado, I am willing to accept that printed copy of the notes as sufficient, without incumbering the record with a second copy. Of course, if we do discover anything out of the way with that printed copy, we will correct it any time, if you want to; but I do not think we ought to burden the record with those field notes twice over. Of course, when the record is finally made up and printed, those things that are in the pleadings will all be printed.

Mr. Keyes: We offer in evidence, then, the field notes of survey of Ehud N. Darling, which I designate as "Colorado Exhibit No. 4". It is understood that it will not be necessary to incumber the record by a copy of said field notes and survey in the report of this proceeding, but that said field notes and survey of Ehud N. Darling, together with the approval thereof by the Commissioner of the General Land Office, as set forth in the answer and cross bill, shall be considered as part of the evidence in the case.

Mr. Clancey: Yes.

Mr. Keyes: In accordance with stipulation, I now introduce in evidence Colorado Exhibit No. 5, consisting of five sheets, numbered 1 to 5 respectively. Said exhibit being the maps of the boundary line between Colorado and New Mexico, on the 37th parallel North latitude, 103 degrees to 109 degrees of longitude West from Greenwich, established and surveyed under direction of Hon. Joseph S. Wilson, Commissioner of the General Land Office, Department of the Interior, by E. N. Darling, United States Surveyor and Astronomer in 1868.

[fol. 649] (The maps last referred to were received in evidence, and marked "Colorado Exhibit No. 5").

Mr. Keyes: In accordance with our stipulation, I now offer and introduce in evidence Colorado Exhibits Nos. 6 to 16, inclusive, the same being township plats and subdivisional surveys closed upon the Darling line.

(The 11 township plats and subdivisional surveys last above referred to were received in evidence and marked, respectivly, from "Colorado Exhibit No. 6" to "Colorado Exhibit No. 16", inclusive.)

By Mr. Keyes:

Q. Mr. Paine, have all the public surveys in Colorado and New Mexico been closed upon the Darling line?

A. To the best of my knowledge and belief, they have.

Q. What was recognized by the Land Office as the southern boundary of Colorado in 1876, when it was admitted into the Union?

A. The Darling line.

Q. What line was recognized by the Land Office as the northern boundary line of New Mexico on January 6, 1912, when New Mexico was admitted into the Union?

A. The same line.

Q. What survey and line is recognized to-day by the Land Office as the boundary line between New Mexico and Colorado?

A. The Darling line.

Q. Have all the lands surveyed and patented in the region of the 37th parallel, between the 103d and the 109th meridians, been closed on the Darling line?

A. That is my impression and belief.

[fol. 650] Q. Mr. Paine, what line and survey were recognized as the boundary between Colorado and New Mexico prior to the time that either State was admitted into the Union?

A. The Darling line.

By Mr. Claney:

Q. In that connection, Mr. Paine, I will ask you a question: Why, then, was the survey which is known as the Carpenter survey ever made under the direction of the Department?

A. As I recognize it, in obedience to the statute providing an appropriation for the resurvey and reestablishment of the 37th parallel

of latitude, where it formed the boundary between the State of Colorado and the Territories of New Mexico and Oklahoma.

Q. Was not that appropriation made in pursuance of recommendations and estimates from the Department?

A. It was.

Q. That was about 1902, was it not?

A. Yes, sir. July 1, 1902, was the date of the appropriation, as I remember it.

By Mr. Keyes:

Q. I hand you, Mr. Paine, what I designate as Colorado Exhibit No. 17, and ask you to state what that is. (Handing paper to witness).

A. (Examining paper.) I recognize this paper as the original letter from the Surveyor General of New Mexico to the Commissioner of the General Land Office, dated February 7, 1918, transmitting therewith filed notes of the resurvey of a portion of the Colorado-New Mexico boundary (Darling survey) from the 216-Mile Corner [fol. 651] to Astronomical Monument No. 8, surveyed under Group No. 79, New Mexico, and identified thus on the records of the surveying division.

By Mr. Carey:

Q. By whom was that survey made?

A. The letter itself does not indicate. I happen to know who made it. Our records show who made the survey.

Q. If you know who made it, state who made it.

A. William C. Perkins.

Mr. Keyes: I now offer and introduce in evidence Colorado Exhibit No. 17, and ask that when a copy thereof is submitted in accordance with our stipulation, the examiner mark the same "Colorado Exhibit No. 17."

(The paper referred to, being original letter dated February 7, 1918, was received in evidence, and a copy thereof was marked "Colorado Exhibit No. 17.")

By Mr. Keyes:

Q. Mr. Paine, I hand you what I have designated Colorado Exhibit No. 18, and ask you to state what that is? (Handing paper to witness.)

A. (Examining paper.) It is an authenticated copy of letter dated July 6, 1918, addressed to the Surveyor General of New Mexico by the Commissioner of the General Land Office, accepting the resurvey of the portion of the Colorado-New Mexico boundary line transmitted with the Surveyor General's letter of February 7, 1918. Further, it was submitted to the Department of the Interior and approved by the First Assistant Secretary July 6, 1918.

Mr. Keyes: I now offer and introduce in evidence what I have [fol. 652] designated as Colorado Exhibit No. 18, and ask that when

a copy thereof is delivered to the examiner, he shall mark the same "Colorado Exhibit No. 18."

(The letter last referred to was received in evidence, and a copy thereof marked "Colorado Exhibit No. 18.")

Mr. Keyes: I understand that Mr. Paine is going to be in Denver, and there might be something that either one of us will want to ask him about in Denver.

The Witness: Yes, I will be there on 17 July 17, surely.

Mr. Clancy: When we get through here, I want it understood that we will take testimony in Denver on the 17th of July.

The Witness: I will not be there then, but I will be there until Saturday the 15th. And if there is any subsequent information that I am able to give offhand out there, of course I will be perfectly willing to meet you.

Mr. Keyes: That is all.

(Thereupon, at 4 o'clock p. m., an adjournment was taken until Thursday, July 6, 1922, at 10:30 o'clock a. m.)

[fol. 653] IN THE SUPREME COURT OF THE UNITED STATES, OCTOBER TERM, 1922

No. 17, Original

THE STATE OF NEW MEXICO, Complainant,

vs.

THE STATE OF COLORADO

Testimony Taken at Washington, D. C., Before Douglas O. Morgan, Examiner

Department of the Interior,
July 6, 1922—10:30 o'clock a. m.

Appearances: Frank W. Clancy, Esq., for the State of New Mexico; Hon. Victor E. Keyes, Attorney General, and William R. Ramsey, Esq., Assistant Attorney General, for the State of Colorado.

WALTER T. PAINE, a witness heretofore called by the State of Colorado and duly sworn, was recalled for further examination and testified as follows:

Cross-Examination.

By Mr. Clancy:

Q. Mr. Paine, yesterday you identified certain plats offered in evidence by the defendant in this case, as showing subdivisional sur-

veys made by W. C. Perkins which closed on the Darling line. As I recollect, each of those plats showed that it was a resurvey, from which I infer that there had been a previous survey of those townships. Is that correct?

A. I have not the evidence before me upon which to answer your question, Mr. Clancy. My connection with the case was only in a very general way, not a particular way. I was testifying at that time concerning the impression which the map made upon me as I [fol. 654] viewed it. I would be very glad to look at the map again and give you my impressions, and perhaps answer better your question.

Q. Can you state whether those surveys of townships covered the whole of the dividing line between Colorado and New Mexico?

A. No, sir, I cannot without reference to the plats themselves. I was testifying concerning the impression which those plats made visually. I have not had sufficient contact with the returns of survey to be certain that I could testify without the use of the plats as to what impression they made on my mind.

Q. It seems that we have not them here at this time. And I wanted to inquire of you because, as I recollect, each one was marked a resurvey.

A. Yes.

Q. If you can, tell us why those townships were resurveys?

A. No; my recollection does not carry me through the various details connected with the production of that map. I am very sorry that that is so, but that is the fact.

Q. Can you readily lay your hands upon the instructions under which Mr. Perkins made those resurveys?

A. Yes, sir; they are part of the records upstairs in our division, group 79. I remember it. I can go right to the files and get them.

Q. That answers the question I was going to ask you—if you can get them. I do not like to give you any more trouble.

A. It is no trouble. Possibly I can get you the plats from our [fol 655] records, of which you had a copy yesterday, and that will, perhaps, permit me to answer more specifically your question.

(A recess of 15 minutes was taken to permit witness to procure papers from the official records.)

After Recess.

By Mr. Clancy:

Q. Mr. Paine, is it or is it not the fact that the resurveys of the townships closing on the Darling line, plats of which were offered in evidence yesterday by the defendant, were made because there had been previous surveys of the same townships, closing on the Carpenter line?

A. Only so in one instance.

Q. Only in one township?

A. 32 North, 4 West, New Mexico Principal Meridian.

Q. Well, can you tell us why the other resurveys were made?

A Because of the fact, according to the best of my recollection, that there were evidences presented to the office as a basis for the resurvey of certain townships in the southeastern corner of Colorado, indicating that the original evidences of those surveys had disappeared.

Q On the grounds?

A On the grounds, the evidences of those surveys had disappeared, and the lands were being entered by parties who called attention to the fact that there were without those evidences upon which to base their locations; and as a result of that condition, under the authority of the Act of March 3, 1909, authorizing the Secretary of the Interior to cause such resurveys to be made as he might judge proper, [fol. 656] we proceeded to let a contract for the resurvey of those townships. I am speaking now entirely from recollection. But they closed on the Major south boundary of Colorado. Major ran a line from the southeast corner of Colorado to the McComb monument, which marked the beginning point of Darling's survey westward therefrom. This is all from recollection. I am not referring to the records.

Q I think you are correct about that; my recollection agrees with that.

This document which you have just handed me (indicating) contains the special instructions for the survey, or for the resurvey, of Township 32 North, in Range 1 East, and in Range 1, 2, 3 and 4 West. It does not cover all of the resurveys of which the plats were put in evidence yesterday. Is that correct?

A It does not. The paper which you have relates to the surveys that were executed under what we all call Group 79.

Mr. Clancy: I do not think there is anything further to be developed.

Redirect examination.

By Mr. Keyes:

Q Mr. Paine, is it true, then, that all township maps and plats are now closed on the Darling line and survey?

A All subsisting lines.

Q How long have they been so closed?

A According to the best information I have, they were always closed there, excepting in one instance.

Q And in that instance, is it true that there was a resurvey, and that is now closed on the Darling line?

[fol. 657] The Witness: May I refer to these records in order to answer that? (indicating).

Mr. Clancy: Certainly.

The Witness: I would like to see that original plat (examining plat). May I answer that question according to my own view of the situation?

Mr. Keyes: Yes.
Mr. Clancy: Yes.

A. In 1907, June 20, a contract numbered 108 was awarded to Alonzo E. Compton, deputy surveyor, to survey unsurveyed Township 32 North, Range 4 West, New Mexico. His instructions required him to close upon the Carpenter survey, where it formed the north boundary of that township. The result of that survey under those instructions is depicted upon a plat denominated Fractional Township 32 North, Range 4 West of the New Mexico Principal Meridian, in New Mexico, approved by the Surveyor General April 22, 1909. My personal view is that the office at that time was confronted with the fact that the Carpenter survey was an accepted survey, executed in compliance with an Act of Congress, and there was, by implication, in the mind of the office the notion that the Carpenter survey was the true south boundary of Colorado, and as such it formed the limit of the survey of the public lands in Township 32 North, Range 4 West, New Mexico Principal Meridian. It was not until 1917 that the office took up the question of the correctness of that view, with reference to what formed the true boundary line between Colorado and New Mexico. In my judgment, the office, having the knowledge that President Roosevelt had vetoed the Joint [fol. 658] Resolution declaring the Carpenter survey as the true boundary of Colorado, the office was contracted with the fact that the Carpenter survey had never been approved.

By Mr. Clancy:

Q. Except by the office here?

A. By any one else than the General Land Office as the boundary line. I say, in view of the fact that that had never been approved by competent authority as defining the true boundary line, instructions were issued in 1917, to William C. Perkins, to restore the Darling line where it formed the north boundary of Township 32 North, Range 4 West, New Mexico Principal Meridian, New Mexico; and I have before me a plat which shows the resurveyed and restored Darling boundary; and that plat also shows that Frederic C. Miller, in 1918, retraced the lines that closed upon the Carpenter survey, and cut off from that north tier of sections numbered 7, 8, 9, 10, 11 and 12 the portion which overran the Darling line, and which closed on the Carpenter line. The result of such survey is found on a supplemental plat, showing sections 7, 8, 9, 10, 11 and 12, approved by the Surveyor General of New Mexico February 20, 1919.

There is also a plat (indicating) showing the resurvey of the south tier of sections of Fractional Township 32 North, Range 4 West of the New Mexico Principal Meridian, in Colorado, approved by the Surveyor General of Colorado, October 30, 1920, which depicts certain tracts of land which had been surveyed as a part of New Mexico by Compton in 1908, and which had been entered according to the plat of the Compton survey. I say it shows certain tracts extending [fol. 659] north, up to the Carpenter line, conflicting with surveys in sections 22, 23 and 24 of the Colorado surveys, which themselves had

previously closed on the Darling line. We find certain tracts numbered 25, 26, 27 and 28, showing on the sides as a legend what sections were originally surveyed as in Colorado, and disposed of as in Colorado, with which there were conflicts by these tracts. There is also a legend showing the areas in conflict. And there are other conclusions, probably, which might be drawn from a study of this plat and what it purports to represent.

Mr. Clancy: Mr. Ramsey, was this plat (indicating plat last referred to by witness) one of those that you put in evidence yesterday or not? Because if not, I want it in.

Mr. Ramsey (examining plat): Yes, that was put in evidence yesterday—Fractional Township 32 North, Range 4 West of the New Mexico Principal Meridian. I think this was put in evidence.

The Witness: You are talking about in Colorado now.

By Mr. Clancy:

Q. If this is already in evidence, of course we do not want to duplicate it; but if it is not, I want a copy of it. Is this in the record? (Indicating plat last above referred to. Exhibit 16, Colorado.)

A. Yes.

By Mr. Keyes:

Q. Is it true, then, Mr. Paine, that, with the exception of the ex- townships of which you have spoken, all township maps and plats have all been closed on the Darling survey?

A. To the best of my knowledge.

Q. Both in New Mexico and Colorado?

[fol. 660] A. To the best of my knowledge and belief, that is true.

Q. When was the Darling survey approved by the Commissioner of the General Land Office.

Mr. Clancy: You put that in evidence yesterday.

Mr. Keyes: I know, but——

A. You are trying to test my memory, I am afraid, and I cannot trust it.

By Mr. Keyes:

Q. The records show that?

A. Yes.

Q. Since the approval of the Darling line and survey in 1869, has that survey always been recognized by the General Land Office as the boundary line between New Mexico and Colorado?

A. With the exception of the time when we recognized the Carpenter survey as the true north boundary of Township 32 North, Range 4 West, New Mexico Principal Meridian.

By Mr. Clancy:

Q. As you have already testified?

A. Yes.

By Mr. Keyes:

Q. And that was a survey of one township only?
A. One township only.
Q. And in the survey of all other townships on or near the boundary the Darling line has been recognized as the true boundary since 1869?
A. Yes, sir.
Q. And what line is recognized by the General Land Office as the boundary line between the two States at the present time?
[fol. 661] A. That is a question of opinion which I should prefer to have the United States Supreme Court decide.
Q. Is it or is it not true that, for administrative purposes, the Darling line is recognized by the Land Office as the boundary between Colorado and New Mexico?
A. Yes.
Q. And is it the only line recognized by the General Land Office as the boundary line, for administrative purposes?
A. Yes.

Mr. Keyes: That is all.
The Examiner: Any further questions, Mr. Clancy?
Mr. Clancy: I do not think I want to ask any more.

(Witness excused.)
(A recess was taken until 2.30 o'clock p. m.)

I have read over the foregoing transcript of my testimony, and the same is correct.

Walter T. Paine, Witness

Afternoon Session

Columbian Building,
Washington, D. C., July 6, 1922—2.30 o'clock p. m.

The Examiner: Are you gentlemen ready to proceed?
Mr. Ramsey: Yes.

SIMON E. SULLIVAN, a witness called by and on behalf of the State of Colorado, having been first duly sworn according to law, was examined and testified as follows:

Direct examination.

By Mr. Ramsey:

Q. State your name?
A. Simon E. Sullivan.
[fol. 662] Q. What is your age?
A. 57.

Q. Where do you reside?

A. At Friendship Heights, Maryland.

Q. What is your business or occupation?

A. I am in the Government service.

Q. How long have you been employed in the Government service, and in what position?

A. Since 1893, in the Post Office Department, in various positions during that period.

Q. What official position do you hold at this time in the Post Office Department?

A. Assistant Superintendent, Division of Postmasters' Appointments.

Q. And what are your official duties as such assistant superintendent?

A. To supervise the establishment of all fourth-class post offices and the appointments, removals, changes of site, etc., in connection with four-class post offices.

Q. As such official, state whether you have supervision, control and direction of the official records of the United States Post Office Department, showing the establishment of post offices throughout the United States?

A. I have.

Q. I show you a large book, and ask you to please state what it is? (Handing book to witness.)

A. (Examining book.) This is a record of all post offices in the States of Colorado and Nevada, established or in operation from 1891 to 1901.

[fol. 663] Q. Does this book show the post offices established by the Post Office Department in the State of Colorado?

A. It does.

Q. Please examine said book, and state from same when and where the post office known as Edith was established?

A. (Examining.) The record at which I am pointing in this book shows that the post office at Edith was established on October 28, 1895, on which date Edgar M. Biggs was appointed postmaster.

Q. And where was it established?

A. In Archuleta County, Colorado.

Q. Please examine the same record book; and state when and where the post office known as La Boca was established.

A. That information is contained in another book.

Q. Please examine the same record book, and state when and where the post office known as Arboles was established.

A. This record book shows that the post office at Arboles was in existence in Archuleta County, Colorado, during the period before mentioned; it does not, however, show the date of establishment of Arboles.

Q. In what State was Arboles established?

A. I do not know where it was established. I could not tell you that. This is not the establishment of Arboles.

Q. Well, in what State is the post office of Arboles now, according to the record?

A. Well, I cannot answer that directly either; I have not the present record. But I can say this: during the period mentioned Arboles was in Archuleta County, Colorado; that is, from 1891 to 1901.

[fol. 664] Q. Now, will you please examine the record as to the post office known as Ortiz?

A. The post office known as Ortiz, I have that here (indicating); in the record book covering the States of Colorado, Montana and Nevada from 1900 to 1908, appears the name of the post office of Ortiz, in Conejos County, Colorado.

Q. Can you state when that office was established and where?

A. No.

Q. Will you please state, from the same record, when and where the post office known as Osier was established?

A. The post office at Osier, I cannot say positively when it was established; but in the record book covering the States of Colorado, Montana and Nevada from 1900 to 1908, appears the name of the post office of Osier, in Conejos County, Colorado.

Q. Please examine and state when and where the post office named as Wooton was established?

A. In the same record book as Ortiz and Osier appears the post office of Wooton, in Las Animas County.

Q. What State?

A. Colorado. Now, I can give the date of the establishment of this office.

Q. All right.

A. The Wooton office was established December 4, 1908.

Q. Please state when and where the post office known as La Costilla was established?

A. Here (indicating on record book) is one called Costilla.

Q. The one I am speaking about is La Costilla.

[fol. 665] A. Is the "La" given?

Q. Yes; it is given as "La Costilla."

A. I do not find any post office there, "La Costilla." Now, you understand that there may have been a place named La Costilla, but the Department leaves off the "La" in those cases.

Q. I hand you this map, and ask you to state what it is (handing paper to witness).

A. (Examining paper.) This is the Post Route Map showing all post offices in operation at the present time in the State of Colorado, published by direction of the Postmaster General, by the Post Office Department.

Q. State whether this map shows the boundaries of the State of Colorado, and the post office established within said boundaries?

A. It does.

Mr. Ramsey: We now offer in evidence this map marked for identification as "Colorado's Exhibit No. 19".

(The map so referred to was received in evidence, and marked "Colorado Exhibit No. 19.")

By Mr. Ramsey:

Q. I hand you a paper relating to the establishment of a post office at Edith, in Archuleta County, Colorado, and ask you to state what it is. (handing paper to witness).

A. (Examining paper.) This paper or statement is one that is required of applicants for the establishment of a post office, giving, for the benefit of the Post Office Department and the topographer in preparation of post route maps, and for other service reasons, the [fol. 666] exact location of the post office to be established; that is, it purports to state in what county and State the post office is to be established, as well as other material information concerning the sections, townships, ranges, etc. It also gives other material information, as, for instance, how far it is from the nearest post office and the nearest railroad, etc. The purport of this thing is to show the exact location of the proposed office.

Mr. Clancy: If you are going to offer it, it can speak for itself as to what it is.

By Mr. Ramsey:

Q. In what State and county does that show that the post office known as Edith is located?

Mr. Clancy: It ought to speak for itself.

A. Yes; it shows right here on the fact that it is in the northeast quarter of section 23, township 32 north, range 1 west, in the county of Archuleta, State of Colorado.

By Mr. Ramsey:

Q. Now, turning over on the back of that sheet of paper, explain what that contains?

A. A diagram showing the site of the proposed post office, which it is stated is in Archuleta County, Colorado.

Mr. Ramsey: We now offer in evidence this original document; but as it is a record belonging to the Department, we will have made a copy of the same and file it with the examiner, marked "Colorado's Exhibit No. 20."

(The paper so referred to was received in evidence, and a copy thereof was marked "Colorado Exhibit No. 20.")

By Mr. Ramsey:

Q. Please examine this paper which I now hand you, and state [fol. 667] what it is (handing paper to witness).

A. (Examining paper.) This is a tracing showing the exact location of the proposed post office at Edith, Archuleta County, Colorado.

Q. Does that diagram show there the State line with reference to the post office of Edith?

A. It does.

Q. Is Edith as shown by the diagram above or below the State line between Colorado and New Mexico?

A. Above the State line, in the State of Colorado.

Mr. Ramsey: We now offer in evidence this diagram; but as it is an original record in the Department, we desire to have a copy made of the same and filed with the examiner as part of the evidence, marked for identification as Colorado's Exhibit No. 21.

(The paper so referred to was received in evidence, and a copy thereof was marked, "Colorado Exhibit No. 21.")

The Witness: That (indicating) was submitted to the Department at the time this (indicating) was; the date is shown here (indicating), "Received in the Post Office Department, November 13, 1895." This other was received on the same day; they are both stamped on the same day, Nov. 13, 1894; one accompanied the other; that is, they both came in together.

By Mr. Ramsey:

Q. Now, recurring to the post office at La Boca, when and where was the post office known as La Boca established?

A. In the record book covering the period from 1896 to 1908, appears the post office La Boca, established in San Juan County, New [fol. 668] Mexico, April 12, 1902. In the record book *book* from 1900 to 1908, appears the post office of La Boca, in La Plata County, Colorado; the first entry of that office in said county and State of Colorado being under date of February 23, 1909.

Q. And where has said post office remained since February 23, 1909?

A. In La Plata County, Colorado.

Mr. Ramsey: That answers my question. Have you any cross examination, Mr. Clancy?

Mr. Clancy: I have not anything to ask him.

(Witness excused.)

Mr. Keyes: This is all the testimony we have to offer in Washington at this time.

The Examiner: Mr. Clancy, have you anything to offer?

Mr. Clancy: No; my statement at the beginning shows that I have nothing at this time and place.

(Thereupon, at 3 o'clock p. m., an adjournment was taken.)

I have read over the foregoing transcript of my testimony, and the same is correct.

Simon E. Sullivan, Witness.

[fol. 669] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

EXAMINER'S CERTIFICATE

To the Honorable the Supreme Court of the United States:

The undersigned Examiner, appointed and designated by orders of this Court entered in this cause, respectively, on the 30th day of January, 1922, and the 15th day of May, 1922, to take all proofs which may be offered by the parties to this cause in Washington D. C., and to return the same, together with all proceedings in connection therewith and all exhibits submitted by the parties to this Court, respectfully reports to the Court that, on July 3, 1922, he took the oath required by said orders; and on July 5 and 6, in Washington, D. C., counsel for the respective parties being present, he proceeded, pursuant to said orders, to take the testimony offered in the cause; and on the last-named day the final session was held in said city, the parties offering no more testimony in said city.

The said orders were executed by receiving the testimony of the several witnesses named in the testimony, who were sworn to testify to the truth, the whole truth, and nothing but the truth, before giving [fol. 670] their evidence; and the testimoney so given by them was taken down in shorthand by the examiner, and is herewith submitted, together with the exhibits offered in evidence. Said testimony is contained in 36 typewritten pages, numbered from 1 to 36, inclusive, and the exhibits introduced were numbered from "Colorado Exhibit No. 1," to "Colorado Exhibit No. 21," inclusive. All of the testimony and all of the exhibits offered were offered by the defendant the State of Colorado, the complainant, the State of New Mexico, offering no testimony or exhibits.

The said testimony and exhibits, including a certain stipulation of counsel, have all been filed with the Clerk of this Honorable Court. And the undersigned Examiner hereby certifies to the correctness of said testimony and proceedings.

Respectfully submitted, Douglas O. Morgan, Examiner.

Dated at Washington, D. C., Sept. 2, 1922.

"E" JAD

New Mexico vs. Colorado. Orig. No. 17. Pp. 14 & 15 of Testimony.

D. O. M.

1–207

Department of the Interior. C. S. D. B.

J. A. D.

General Land Office,
Washington, July 19, 1922.

I hereby certify that the annexed photographic copy of a letter dated May 26, 1868, from the Commissioner of the General Land Office, addressed to Ehud N. Darling, Surveyor, concerning the survey of the Northern boundary of New Mexico is a true and literal exemplification of the official record of said letter on file in this office.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

D. K. Parrott, Acting Assistant Commissioner of the General Land Office. (Seal of United States General Land Office.)

[fol. 672]

Department of the Interior,
General Land Office, May 22d, 1868.

Ehud N. Darling, Esq., Washington, D. C.

Sir: I transmit herewith triplicate Contract and Bond entered into between the Commissioner of the General Land Office and yourself under date of May 22d, 1868, for the survey of the 37th Parallel of North Latitude, so far as it constitutes the North Boundary of the Territory of New Mexico.

Inasmuch as the execution of the survey has heretofore been delayed by a party who had contracted for the same, it is expected that you will at once proceed to the sphere of your duty under the aforesaid Contract and diligently prosecute the work with due regard to accuracy and permanency of the survey.

Very respectfully, Your obedient servant, Jos. S. Wilson, Commissioner.

Return of the Survey made Apl. 14, 1869.

Department of the Interior,
General Land Office, May 26th, 1868.

Ehud N. Darling, Esq., Surveyor Northern Boundary of New Mexico.

Sir: In connection with your contract of the 22d inst., for the determination surveying and marking of the Northern Boundary of

New Mexico. I transmit herewith a sketch of the country near the Southern boundary of Kansas, astronomically established and surveyed under direction of War Department in 1857, being on the same parallel of North Latitude you are to survey the boundary under your Contract as aforesaid. I also inclose you copy of a communication from A. A. Humphreys, Brig. Genl. & Chf. of Engineers, &c., dated April 22: 1867, bearing upon the subject matter of the Western terminus of the Southern boundary of Kansas, as well as the intersection point of the 103d West Longitude from Greenwich with the 37th parallel of North Latitude, which point of intersection, or the initial point of your survey under the contract, you will perceive, was commemorated in 1859 by Capt. J. N. Macomb, Corps of Topographical Engineers, by a rough stone monument situated 11 582 feet to the East of the original monument placed in 1857 constructed of earth and sod at a distance of 462.7 miles West of the Western Boundary of the State of Missouri.

With the aid of these evidences of the beginning point of your survey of the Northern Boundary of New Mexico, you will be enabled to identify it and in case the stone monument is found in its proper place, and intact, you will adopt it as the monument designating the North Eastern corner of New Mexico. Should, however, the aforesaid rough stone monument be missing and its proper position doubtful, then in that contingency you will determine the point of intersection of the 37th parallel North Latitude with the 103d Longitude West of Greenwich & perpetuate the same in the manner stipulated [fol. 674] in your contract.

As the boundary you have contracted to determine and survey is of great importance to the political jurisdictions of the territories of New Mexico, and Colorado it is deemed necessary that, before you proceed in the survey of it, the evidence of skill and qualifications of the person whom you employ as an astronomer in the work be submitted to this office for the approbation of the Department or otherwise.

I am, very respectfully, your obt. servt., Jos. S. Wilson, Commissioner.

Department of the Interior.
General Land Office, June 5, 1868.

John A. Clerk, Esq., Surveyor General, Santa Fe, New Mexico.

SIR: The account of Bidwell & Farwell for stationery furnished your office, amounting to $132.51 received with your letter of the 25th ult. from Freeport, Illinois, was this day reported to the Treasury for payment with request that draft be sent to payees at Freeport, Ill. as directed in your letter.

Very respectfully, &c., Jos. S. Wilson, Commissioner.

[fol. 675] COLORADO EXHIBIT NOS. 17 AND 18.

"E" JAD

New Mexico vs. Colorado, Orig. No. 17, p. 19 of Testimony.
D. O. Morgan.

Department of the Interior, C. L. D. B.
General Land Office,
Washington, July 19, 1922.

J. A. D.

I hereby certify that the annexed photographic copy of a letter dated February 7, 1918, from the U. S. Surveyor General for New Mexico addressed to the Commissioner General Land Office transmitting the returns of the resurvey of the Colorado, New Mexico boundary and reply thereto dated July 6, 1918, acceptance of said resurvey, are true and literal exemplification of the official record of said letters on file in this office.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

D. K. Parrott, Acting Assistant Commissioner of the General Land Office. (Seal United States General Land Office.)

[fol. 676] 4243. 1-130. 3-190. 650,446.

"E." C6T. 650,446. Transmitting returns. Colo.-N. M. Bdy. survey, Gp. 79, New Mexico. Incls. EFW.

To Sur. Gen. July 6, 1918, accepting survey. Letter approved by Secretary. J. B.

Department of the Interior,
Office of the U. S. Surveyor General,
Santa Fe, New Mexico, Feb. 7, 1918.

The Commissioner General Land Office, Washington, D. C.

SIR: Herewith I am sending you, for your consideration and approval, plat and book of field notes of the resurvey of a portion of the Colorado-New Mexico Boundary (Darling Survey), from the 246 Mile Corner to Astronomical Monument No. 8, surveyed under instructions for Group 79, New Mexico, authorized by your letter 650446 "E" C6T, dated March 20, 1917.

Cost card showing the cost of this resurvey is also enclosed.

Very respectfully, Lucius Dills, U. S. Surveyor General. MC

[fol. 667] In reply please refer to 650446 "E" 2. J. B.
Gr. 79, New Mex.
Address only the Commissioner of the General Land Office.

Department of the Interior.

General Land Office,
Washington, July 6, 1918.

Acceptance of resurvey Colorado-New Mexico boundary.

U. S. Surveyor General, Santa Fe, New Mexico.

SIR: With your letter dated February 7, 1918, there were received in this office the plat and field notes of the restoration and resurvey of a portion of the Colorado-New Mexico boundary line extending from the 213 mile corner west to Astronomical Monument No. 8, as executed by William C. Perkins, U. S. Surveyor, under instructions issued in office letter "E" of May 23, 1917, to Mr. Frank M. Johnson, Supervisor of Surveys.

A careful examination has been made of these returns of surveys. The work in the field appears to have been accurately and properly performed and as the resurvey is deemed to be correct it is hereby accepted.

[fol. 678] In view of the importance of this matter a review will be made of the essential developments, and the force and effect of the present reestablishment of the boundary will be explained.

The Territory of Colorado was organized under the Act of February 28, 1861 (12 Stat., 172), and the south boundary of said Territory was fixed as the thirty-seventh parallel of latitude between the twenty-fifth and thirty-second meridian of longitude west of Washington.

The State of Colorado was admitted into the Union in 1876, and the second section of the Enabling Act of March 3, 1875 (18 Stat., 475), fixes this boundary "along the thirty-seventh parallel of north latitude", being the line which had theretofore been declared as the south boundary of the Territory.

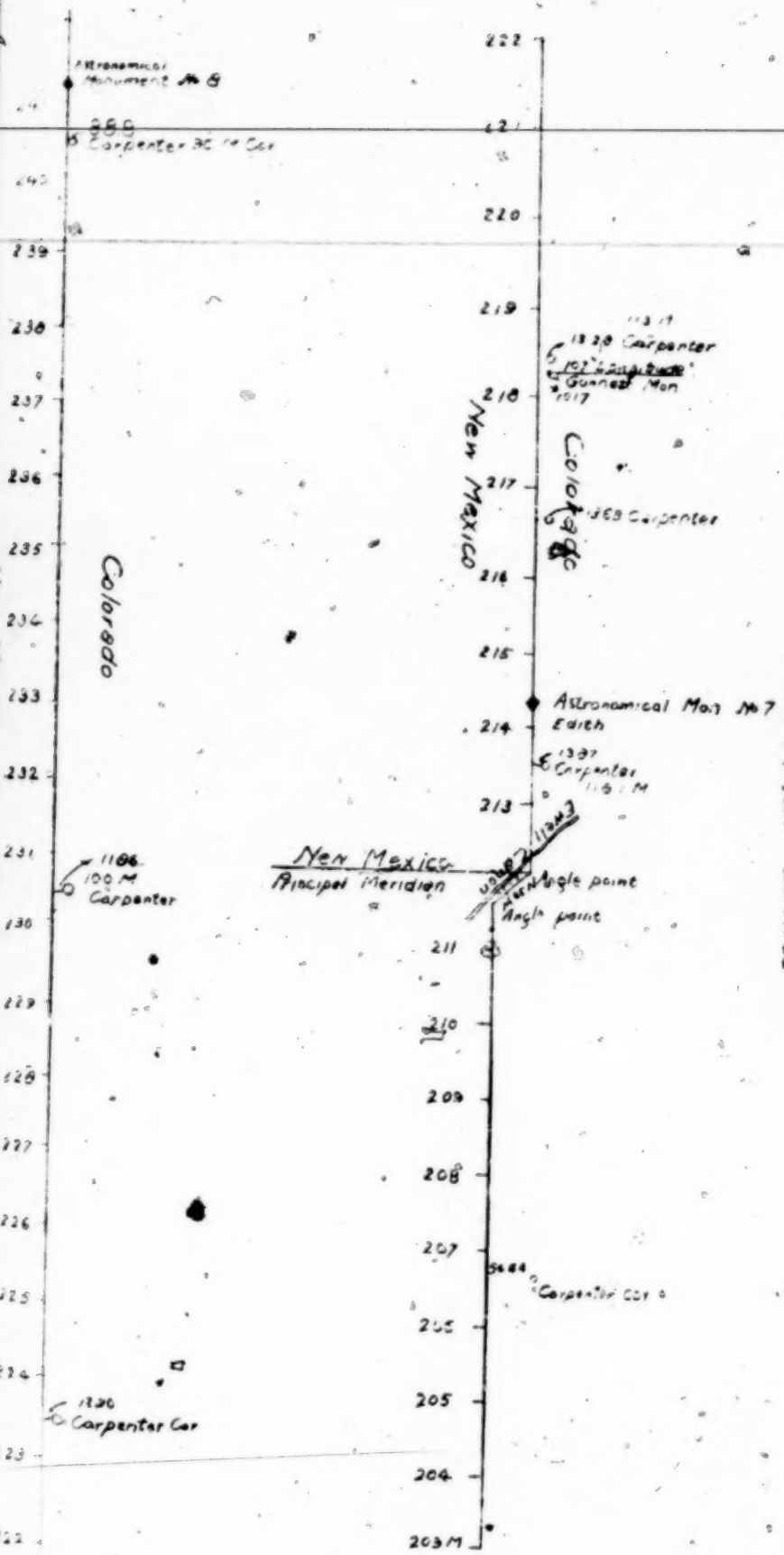
The initial determination of the location of the thirty-seventh parallel of latitude in the locality mentioned was made in 1857 under the direction of Col. Joseph E. Johnston, U. S. Army, who established the same as far west as his determination of the 103d [fol. 679] Meridian west of Greenwich, said meridian being the legal east boundary of New Mexico. In 1859 Captain Macomb, U. S. Army, under orders from the War Department, established a new monument at a point about two miles east of the Johnston monument because of errors made in Col. Johnston's determination, and in 1868 Ehud N. Darling, U. S. Surveyor and Astronomer, under contract with this office, established the north boundary of New Mexico from the Macomb monument west to the 109th meridian on the 37th parallel of latitude, as determined by a series of astronomical observations and calculations. Mile corners are reported to have been established on the line wherever the nature of the country would permit for a distance of 331¼ miles, but owing to the reported roughness of the country the line for long distances in certain places was unmarked by Darling in any manner.

In 1873 it became necessary to establish the east boundary of the Southern Ute Indian Reservation in Colorado, the same being the 107th meridian as extended north from the 37th parallel of latitude. Under instructions from this office R. C. Darling, U. S. Surveyor, [fol. 680] established at a point on the E. N. Darling line the southeast corner of the said reservation, estimated as on the 107th meridian. A question having arisen as to the correctness of said location, S. S. Gannett, of the Geological Survey, in 1897, determined for the Indian Office the true location of the said reservation corner by astronomical observations.

By the Act of July 1, 1902 (32 Stat., 552, 574) appropriation was made "for the resurvey and reestablishment on the line of the thirty-seventh parallel of north latitude, of the boundary between the State of Colorado, and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of longitude west of Washington."

In pursuance of this act of Congress this office entered into a contract with Howard B. Carpenter, Surveyor and Astronomer, for the survey and establishment of the said thirty-seventh parallel of latitude. The Carpenter survey having been executed in accordance with the terms of the contract was duly accepted by this office. [fol. 681] The line as established by Carpenter was surveyed without regard to the original Darling survey of the 37th parallel, and the practical effects of the Carpenter line, if adopted, would be to remove a strip of land along the major portion of the boundary, which includes several settlements and towns of importance, theretofore under the jurisdiction of Colorado, and add the same to New Mexico. The Gannett monument [illegible] referred to, was found by Carpenter to be located three [illegible]th of his determination of the parallel. The records of this office show the following difference in the relative position of the Darling and Carpenter lines: Commencing at Ewell Canon, near the New Mexico Principal Meridian, the records show that from this point westward for a distance of about 100 miles to astronomical monument No. 1, the Darling line is situated from 5 to 10 chains south of the Carpenter line, and from astronomical monument No. 1 westward to the southeast corner of Colorado, a distance of 20 miles, the two lines appear to be almost coincident. From Ewell Canon eastward there is noted a maximum difference of about 56 chains in the vicinity of Dar- [fol. 682] ling's 206 mile corner, which difference gradually diminishes toward the east for a distance of about 175 miles until the two lines cross each other, and along the last 38 miles they are in very close agreement.

Page 8, it will be noted, is a diagram, on a scale of 43 miles to the inch, representing the position of that portion of the Darling line as now resurveyed and approved, in its relation to the Carpenter line. The diagram is incorporated as part of the letter and the foregoing discussion relative to the Carpenter and other determinations of the parallel of latitude is introduced so that we may here have, for future reference, a more or less complete resume of all



RESURVEY
COLORADO NEW MEXICO BOUNDARY
Carpenter Line Shown in Red
Scale 1 Inch = 2 Miles

683

Page 7

the essential features pertaining to the location of the Colorado-New Mexico boundary.

(Here follows drawing, marked side folio page 683).

On December 7, 1908, Congress passed Joint Resolution S. R. 78, which provided for the adoption of the Carpenter line as the boundary, but the same was returned by the President December 19, 1908, [fol. 684] without approval. The line as established by Carpenter, therefore, was never officially adopted as the boundary, and the action taken by this office in accepting the Carpenter survey is to be interpreted merely as indicating that Surveyor Carpenter complied in full with the terms of the contract entered into between him and this office.

The effect of the present restoration of a portion of the Darling line will now be considered. The plat and field notes of the original survey as executed by Darling in 1868 represent the boundary to be established on an unbroken line along the thirty-seventh parallel of latitude. The present restoration, however, indicates that a break in the line occurred in the vicinity of Ewell Canon. From the best available evidence it is concluded that from the 206th mile corner the line was surveyed west to the canon and that from Astronomical Monument No. 7 the line was extended east to the canon. This procedure has been repeated in the present survey and the two lines [fol. 685] have been connected at the most feasible position in the canon. The line as thus established disturbs in the smallest degree the rights of bona fide entrymen, and at the same time will involve the least difficulty in the completion and closing of the public land surveys adjacent to the boundary.

The correctness of the present reestablishment is confirmed by the fact that several original corners or the positions thereof which have been adopted as controlling the alignment and location of the boundary are the same as were found and identified by Supervisor of Surveys Frank M. Johnson in 1901.

Attention is now invited to office letter "L" (W. T. P.), dated April 30, 1902, to the Department wherein it was stated that,

"Notwithstanding the different locations of the monuments which were supposed to have been established upon the thirty-seventh parallel of latitude, this office is of the opinion that for all administrative purposes the line established by E. N. Darling in 1868, wherever its location can be identified beyond a reasonable doubt, should be recognized as the boundary line."

This view is now reaffirmed, and the location of the boundary by Darling as reestablished in the current survey will accordingly con- [fol. 686] trol in all matters of public land surveys and administration, for the following reasons:

The Darling original survey of the boundary was made in the

year 1868, when both Colorado and New Mexico, as Territories, were under the jurisdiction of the Federal Government. The establishment of a common boundary between the Territories was a matter entirely within the control of the Government and the so called Darling location which was executed under proper Federal authority and duly accepted, was in the absence of fraud or gross irregularity, conclusive upon the Territories. When the State of Colorado was admitted into the Union in 1876, it was in accordance with the boundary established by Mr. E. N. Darling in 1868.

Defects in the original survey discovered after a long term of years do not affect the validity of the establishment. It may be cited that the boundary between South Dakota and Montana is fourteen chains west of the boundary between South Dakota and Wyoming, although both are declared to be the same meridian of longitude, namely twenty-seven degrees west of Washington. As [fol. 687] another instance of defective original establishment of a State boundary may be mentioned the boundary between Wyoming and Montana in the vicinity of T. 58 N., R. 101 W., 6th P. M., Wyoming. This boundary although declared to be on the 45th parallel of latitude contains a break in the line at mile post No. 97. The line between mile post 97 and 98 according to the records of this office was found to be S. 66 degrees E., 87.37 chains, which corresponds to a difference of about 37 chains in latitudinal position. The marked similarity between this case and the one in hand will be noted. There is of course no intention of making any change in these boundaries. When it is understood that an error of one second of arc of latitude is equivalent to an error of about 100 feet measured upon the earth's surface, no two independent establishments of a parallel of latitude can be in exact agreement. The well established principle of law that monuments control over courses and distances is quite applicable to this case.

In conclusion, it may be added that to reestablish the boundary [fol. 688] at any other location excepting in its original position would cause complications and unduly disturb the legal titles to numerous parcels of land acquired in good faith. Furthermore, such an establishment, in case of controversy, involving, as it would, a change in the location of the boundary between two States, could be effected only by invoking by appropriate proceedings the original jurisdiction of the U. S. Supreme Court. (See R. I. v. Mass., 12 Pet., 657; N. J. v. N. Y., 5 Pet., 284; Mo. v. Iowa, 7 How., 506; Fla. v. Ga., 17 How. 478; Ala. v. Ga., 23 How. 505; Va. v. W. Va., 11 Wall., 39; Mo. v. Ky., 11 Wall., 395; Ind. v. Ky., 136 U. S., 479; Nebr. v. Iowa, 143 U. S., 357; Va. v. Tenn., 148 U. S., 503).

The Governors of Colorado and New Mexico have been furnished with copies of this letter. If the Legislatures of these States would formally approve and adopt the Darling line as the boundary it will put an end to a troublesome controversy of long standing, which is of more theoretical than practical importance.

Approved: Jul. 6, 1918.

Very respectfully, (Signed) Clay Tallman, Commissioner.
(Signed) Alexander T. Vogelsang, Secretary.

[fol. 689] COLORADO EXHIBIT No. 1

"E" Jad

New Mexico vs. Colorado, Orig. No. 17, P. 13 of Testimony D. O. M.

4-207

J. A. D. Department of the Interior. E. L. D. B.
General Land Office,
Washington, D. C., July 19, 1922.

I hereby certify that the annexed photographic copy of the contract and Bond, dated May 22, 1868, between the Commissioner of the General Land Office, and Ehud N. Darling, for the survey of the northern boundary of New Mexico, is a true and literal exemplification of the said contract and Bond on file in this office.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

D. K. Parrott, Acting Assistant Commissioner of the General Land Office. (Seal United States General Land Office.)

[fol. 690] This agreement made this 22d day of May, 1868, between Joseph S. Wilson, Commissioner of the General Land Office, acting for and in behalf of the United States of the one part and Ehud N. Darling, of the State of Kansas of the other part.

Witnesseth:

That the said Ehud N. Darling for and in consideration of the conditions, terms and provisions and covenants hereinafter expressed, and according to the true intent and meaning thereof, does hereby covenant promise and agree, with the said Commissioner in his capacity aforesaid, that the said Ehud N. Darling in his own proper person, with the assistance of such astronomers, chainmen, axmen, flag-bearers and others, as may be necessary agreeably with the laws of the United States and with such general and special instructions as he may receive from the Commissioner or his successors in Office will well, truly and faithfully establish by astronomical observa-
[fol. 691] tions the 37th parallel of North Latitude between the 103rd and 109th degrees of West longitude from Greenwich, which is a boundary common to New Mexico and Colorado Territories as defined by Acts of Congress approved September 9th, 1850 vide section 2, Statutes at Large Vol. 9, page 447 and Febry 28th, 1861, See Section 1 of "An Act to provide a temporary government for the Territory of Colorado," Statutes at Large, Vol. 12, page 172.

The said Ehud N. Darling will survey and mark said line on the surface of the earth by the erection of monuments, mounds and posts constructed and inscribed as specified in the paper hereunto annexed and marked "A," all and every specification and condition of which is hereby incorporated and made a part of this agreement, and is here referred to for a particular description of said monuments,

mounds and posts. And the said Ehud N. Darling will complete these observations, calculations and surveys in the manner aforesaid, and return the true record of observations, reductions of final results, [fol. 692] field notes and plats of said boundary line, in the form prescribed, in triplicate, to the General Land Office on or before the first day of June, 1869, (acts of God excepted) on penalty of forfeiture and paying to the United States the sum of Thirty-eight thousand ($38,000) Dollars as specified in the annexed bond executed by the said Ehud N. Darling and bearing date the 22d day of May, 1868, if default be made in any of the foregoing conditions.

And the said Joseph S. Wilson, in his capacity as Commissioner as aforesaid, covenants and agrees with said Ehud N. Darling, that on the completion of the observations and surveys above named and the returns thereof in the manner aforesaid, there should be paid by the United States unto the said Ehud N. Darling, as a full compensation for the whole expense of said observations and surveys and making returns thereof, including the use of his own instruments, the sum of Nineteen thousand dollars ($19,000).

[fol. 693] And it is farther understood and agreed by and between the parties to this Agreement that the said Commissioner reserves to himself in his said capacity and to his successors in Office, the right in the event of his or their having reasonable ground to believe that the work contemplated to be performed by the said Ehud N. Darling under the contract, shall not have been executed in the manner contemplated by the said laws and instructions, and that an examination thereof is required by the public interests, to appoint at any time a competent and disinterested examiner or examiners to inspect the said work in the field at the cost and expense of the said Ehud N. Darling. And that should any correction for error in survey or want of durability be found in establishing the monuments and land marks on the earth's surface, the cost incident to the same shall be paid out of the sum hereinbefore agreed upon, as the consideration for the whole service, it being understood that this contract is not to become effective until the approval of the Secretary of the Interior [fol. 694] shall be appended hereto. Provided that no member of Congress or subagent or contractor shall have any part or interest in this Contract, and that no payment shall be made for any surveys not executed by the said Ehud N. Darling himself in his own proper person.

In testimony whereof, the parties to these articles of agreement have hereunto set their hands and seals the day and year above written.

Jos S. Wilson (Seal), Commissioner of the General Land Office. Ehud N. Darling (Seal), Astronomer and Surveyor.

Signed, sealed and acknowledged before us J. F. Callan. Saml. S. Smoot.

I, Ehud N. Darling, Astronomer and Surveyor, do solemnly swear that I will truly, faithfully and impartially execute the observations, [fol. 695] calculations and surveys mentioned in the foregoing agree-

ments to the best of my ability and skill, in accordance with the laws and instructions therein mentioned.

Ehud N. Darling (Seal).

Sworn to and subscribed by the said Ehud N. Darling before me, a Notary Public, this 22d day of May, 1868. John F. Callan, Notary Public.

[fol. 696]

Bond

Know all men by these presents, that we, Ehud N. Darling of the State of Kansas as Principal, and Saml. S. Smoot and Solomon Markham of the State of Kansas and Almon Hovey of the State of Nevada as sureties, are held and firmly bound to the United States in the sum of Thirty eight thousand dollars lawful money of the United States, being double the estimated amount which would be due by the United States to the said Ehud N. Darling on the completion of the observations and surveys named in the agreement entered into on the 22d day of May 1868, by Joseph S. Wilson as Commissioner of the General Land Office and the said Ehud N. Darling hereto annexed for which payment well and truly to be made, we bind ourselves, our heirs, executors, and administrators, and each and every one of us and them, jointly and severally, firmly by these presents: signed with our hands and sealed with our seals this 22nd day of May 1868.

[fol. 697] The condition of the above obligation is such, That if the above bounden Ehud N. Darling shall well and truly and faithfully, according to the laws of the United States and the instructions of the said Commissioner make and execute the *the* observations, calculations and surveys which are required to be made by him by the said Agreement in the manner prescribed thereby; and shall also make due return of the calculations, observations, plats and notes thereof in the manner and within the time prescribed by said agreement and instructions, or within such extension of the said time as the said Commissioner may afterwards designate, then this obligation to be void, otherwise and in default of a complete and full compliance with either or any of said obligations in said agreement, it shall remain in full force and effect.

[fol. 698] Saml. S. Smoot (Seal), Solomon Markham (Seal), Almon Hovey (Seal), Ehud N. Darling (Seal).

Signed, sealed and acknowledged before us, J. F. Callan, Chas Cons Callan, M. B. Robinson.

Department of the Interior,
Washington, D. C., May 22nd, 1868.

I, O. H. Browning, Secretary of the Interior do certify that, in my opinion the sureties to the above Bond are sufficient and I do hereby approve the same.

Witness my hand and seal of Office this 22d day of May 1868.

O. H. Browning, Secretary of the Interior.

[fol. 699] Oath

Prescribed to be Taken by All Persons in the Public Service, by Act of Congress Approved July 2, 1862

I, Ehud N. Darling, of the State of Kansas, do solemnly swear that I have never voluntarily borne arms against the United States since I have been a citizen thereof; that I have voluntarily given no aid, countenance, counsel, or encouragement to persons engaged in armed hostility thereto; that I have neither sought nor accepted nor attempted to exercise the functions of any office whatever under any authority or pretended authority in hostility to the United States; that I have not yielded a voluntary support to any pretended government, authority, power, or constitution, within the United States, hostile or inimical thereto. And I do further swear that, to the best of my knowledge and ability, I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion and that I will well and faithfully discharge the duties of the office on which I am about to enter: So help me God.

Ehud N. Darling (Seal).

District of Columbia,
Washington County, ss:

Sworn and subscribed to before me, this 22d day of May A. D. 1868.

John F. Callan, Notary Public.

[fol. 700] Department of the Interior, May 22d, 1868.

The foregoing Contract and Bond are hereby approved.

O. H. Browning. (Seal.)

[fol. 701] "A"

Proposal and Agreement to Survey the Boundary Line Between New Mexico and Colorado Territories

I, Ehud N. Darling of the State of Kansas, having been designated by the Hon. O. H. Browning Secretary of the Interior, Surveyor for the establishment of the boundary line between New Mexico and Colorado Territories included between the 103d and 109th degrees of West longitude from Greenwich, on the 37th parallel of North latitude, obligate myself to execute the survey in the following manner:

As this is an important geographical line, I will determine it by a series of astronomical observations eleven nearly equidistant stations near the 37th parallel of North latitude included between the aforesaid points, in order to establish it; I will take at least six hundred observations of circum meridian and circum polar stars for lati-
[fol. 702] tude, and East and West stars near the prime vertical for

time. These observations will be reduced and subjected to a rigorous discussion, and the final results deduced in accordance with well established mathematical formula and a complete record of the astronomical, magnetic and other observations, and the various reductions and final results will be forwarded to the Commissioner of the General Land Office in proper form to be permanently preserved for future reference.

1st. Opposite to each of the eleven astronomical stations I will erect on the parallel established by me a shaft of stone not less than twelve inches in diameter in any part and at least six feet in length, three feet of which will project above the surface, one half the length being imbedded in the earth, twelve inches at the top of the shaft will be squared to correspond with the cardinal points of the compass, on which shall be durably inscribed by chiseling out the stone, on the [fol. 703] North "Colorado" on the South "New Mexico," on the East "1868" and on the West "37 N. L." Around this shaft I will construct a circular mound five feet in diameter, of stone boulders, firmly imbedded in the ground, and tapering up to the shaft at the height of two feet. On each of the four sides facing the shaft, I will dig a pit two feet square, eighteen inches deep and six feet from the base of the mound, and if there be any ornament natural objects which can be made available in perpetuating the monuments, the bearings and distances of such objects from the monument will be carefully ascertained and described in the notes as "Witnesses"; full and accurate description of the monuments will be given.

2nd. Having thus established the eleven astronomical monuments, it will remain to survey and mark the boundary line intermediate. In doing this I will use a "Transit" of approved manufacture and [fol. 704] Gunter's chain, carrying an extra standard chain with which the one used shall be compared and tested every morning, and as much oftener as may be necessary to insure its accuracy. As the work progresses, observations at night on polaris upper and lower culmination will be made.

I will make offsets from tangent to parallel from every astronomical monument East and West, to the equidistant points between them, perpetuating the true points in the parallel of latitude as follows: At the end of each mile I will raise an earthern or stone mound four feet high of a conical shape with a pit two feet square and eighteen inches deep on the East and West of the mound and six feet from its base; prior to constructing the mound, I will make an excavation in the centre of the mound, three feet and six inches deep, at the bottom of which I will place a marked stone, a quantity of charcoal or a charred block, stating in the field notes which of these is used and if stone is used describing the particular mark, and [fol. 705] above this I will plant a post eight feet in length and six inches square, beveled at the top, three feet in the ground, leaving twelve inches to project above the top of the mound, upon which will be durably marked on the north side "C." for Colorado; on the South "N. M." for New Mexico; on the West, "1868"; and on the

East the number of each mile from the initial station or the point of intersection of the 103d degree of West longitude with the 37th parallel of North latitude, to wit: "1 M., "2 M., &c.; every such mile post will be witnessed by as many natural objects or trees, and the bearings and distances carefully stated in the field notes, but if no permanent objects can be found, that fact will be noted.

Where the physical features of the country on the parallel will be found such as to preclude the possibility of overcoming them owing to the inaccessibility of snowy mountains, high and abrupt ridges, deep cañons or other insurmountable impediments to the di- [fol. 706] rect measurement of the tangent and the ascertainment of the differences of longitude between the astronomical stations, in that case triangulation checked by frequent determination of the latitude where the features of the country will afford the facilities for so doing, will be resorted to, in order to obtain the distance over impassable barriers. And in regard to the marking of the parallel in such contingencies, I will avail myself of the natural monuments such as peaks of mountains or other bold and prominent landmarks though at irregular distances yet standing on the parallel. As the paramount object in view is to make the boundary between New Mexico and Colorado Territories perceptible to the people of the respective jurisdictions, I will, in erecting monuments, locate those which cannot be placed at the proper mile points near travelled roads, rivers, and mountain passes. I will sketch the topography of the country, immediately along the parallel platting remarkable ranges [fol. 707] of mountains, lofty peaks by which the vicinity of the boundary and of the monuments perpetuating it can be identified. The maps of the boundary in triplicate will exhibit the eleven astronomical Monuments erected on the parallel together with other topographical data and in making returns of the same to the General Land Office they will be accompanied by a report showing the character of the observations, results and their application to the determination and marking of the 37th parallel of North Latitude coextensive with the common boundary between the Territories of New Mexico and Colorado; I will commemorate the initial and terminating points of the Boundary on the North East and North West corners of New Mexico by erecting more conspicuous monuments than those which will be built in the intermediate places, conditioned for their endurance, as well as for their ready re-establishment in case they are destroyed by time or accident.

[fol 708] 5th When the survey contemplated in this proposal is completed I will transmit to the General Land Office the Field notes and Maps of the Survey in triplicate, duly verified in such form as the Commissioner may require.

Finally, I hereby propose and agree to establish and survey the aforesaid boundary line and will and faithfully to do all and every act and thing herein specified subject to such directions and requirements as the Commissioner of the General Land Office may deem necessary for the sum of $19,000—the amount appropriated by Con-

gress for the survey of that boundary, per Act approved March 2d, 1867.

Ehud N. Darling (Seal.)

Washington, D. C., May 22d, 1868.
Witnesses: J. F. Callan, Saml. S. Smoot.

[fol. 709] COLORADO EXHIBITS Nos. 20 AND 21.

New Mexico v. Colorado, Orig. No. 17, Oct. Term, 1922, Pp. 34 and 35 of Testimony. D. O. Morgan.

Office of the Postmaster General,
Washington, D. C., July 7, 1922.

I hereby certify that the annexed are photostatic copies of the original documents filed in this Department relative to the establishment of the post office at Edith, Archuleta county, Colorado.

In testimony whereof I have hereto set my hand, and caused the seal of the Post Office Department to be affixed, at the City of Washington, the day and year above written.

Hubert Work, Postmaster General of the United States of America. Per M. (Seal of the Post Office Department, United States of America.)

[fol. 710] No. 1011

(Location Paper.)

Post Office Department,
Office of the Fourth Assistant Postmaster General,
Appointment Division.

Washington, D. C., Sept. 23, 1895.

SIR: Before the Postmaster General decides upon the application for the establishment of a post office at Edith, County of Archuleta, State of Colorado, it will be necessary for you to carefully answer the subjoined questions, get a neighboring postmaster to certify to the correctness of the answers, and return the location paper to the Department, addressed to me. If the site selected for the proposed office should not be on any mail route now under contract, only a "Special Office" can be established there, to be supplied with mail from some convenient point on the nearest mail route by a special carrier (see section 702, Postal Laws and Regulations of 1893), for which service a sum equal to two-thirds of the amount of the salary of the postmaster at such office will be paid by the Department.

You should inform the contractor, or person performing service for him, of this application, and require him to execute the inclosed

certificate as to the practicability of supplying the proposed office with mail, and return the same to the Department.

Very respectfully, H. C. Maxwell, Fourth Assistant Postmaster General.

To Mr. Edgar M. Biggs, care of the Postmaster of Lumberton, N. Mex., who will please forward to him

Statement

The proposed office to be called Edith.

Select a short name for the proposed office, which when written will not resemble the name of any other post office in the State.

It will be situated in the N. E. quarter of Section 23, Township 32 (North or South), North, Range one (East or West), West, in the County of Archuleta, State of Colo.

It will be on or near route No. 65227, being the route from Pagosa Springs, Colo. to Lumberton, N. M., on which the mail is now carried six times per week.

Will it be directly on this route?—Ans. No.

If not, how far from it?—Ans. About ½ of one mile.

If not on any route, is a "Special Office" wanted?—Ans. No. To be supplied from Route 65227.

The name of the nearest office to the proposed one, on one side, is Lumberton, N. M., its distance is 7½ miles in a Southwesterly direction from the proposed office.

The name of the nearest office, on the other side, is Chromo, Colo., its distance is 5½ miles in a Northeasterly direction from the proposed office.

The name of the other nearest office to the proposed one is Pagosa Springs, Colo., its distance by the most direct road is 20 miles in a northerly direction from the proposed office.

The name of the most prominent river near it is Navajoe.

The name of the nearest creek is —.

The proposed office will be ¼ of one mile from said river, on the north side of it, and will be — miles from said nearest creek, on the — side of it.

The name of the nearest railroad is Rio Grande & Pagosa Springs R. R.

If on the line of or near a railroad, on which side will the office be located, how far from the track, and what is, or will be, the name of the station?—Ans. North side, 300 ft. Edith.

If it be a village, state the number of inhabitants.—Ans. 150.

Give the population to be supplied by the proposed office.—Ans. 200.

If it be a village, state the number of inhabitants.—Ans. —.

A diagram, or sketch from a map, showing the position of the proposed new office, with neighboring river or creek, roads and other post offices, towns, or villages near it, will be useful, and is therefore desired.

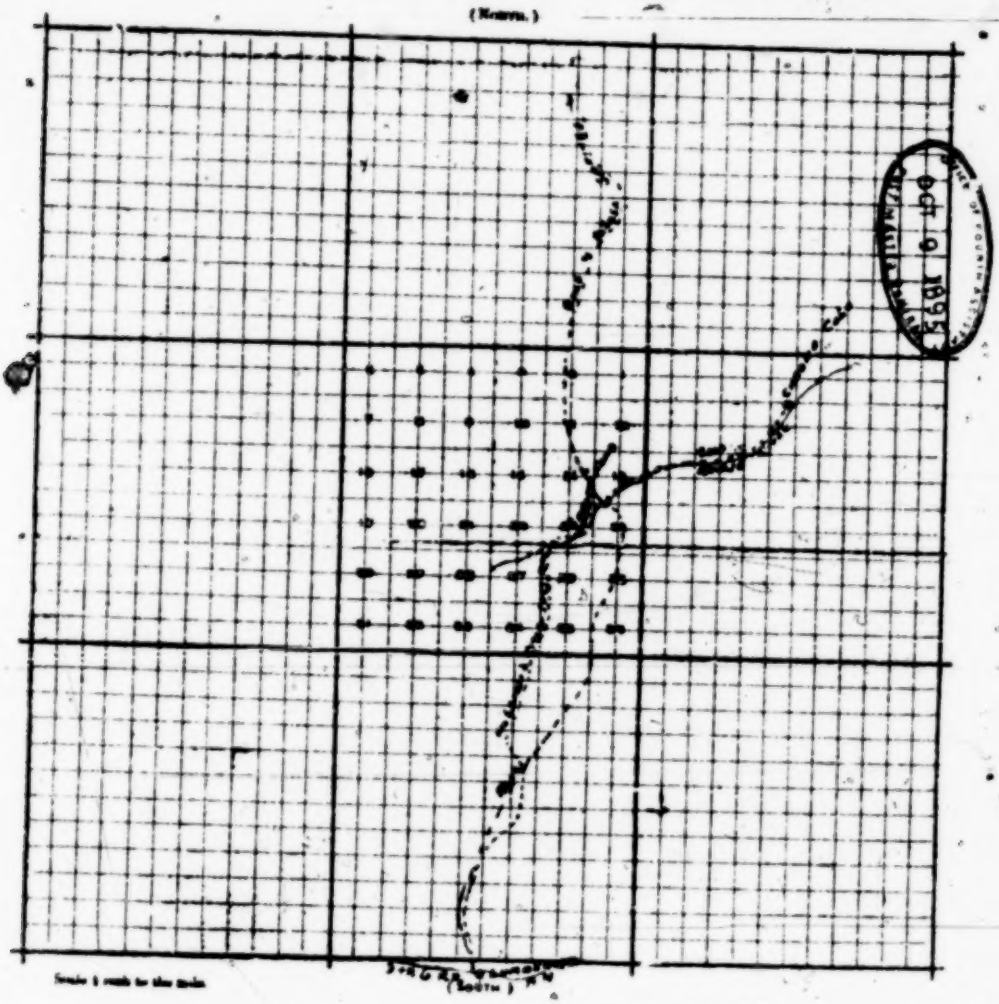
Diagram showing the site of the Edith

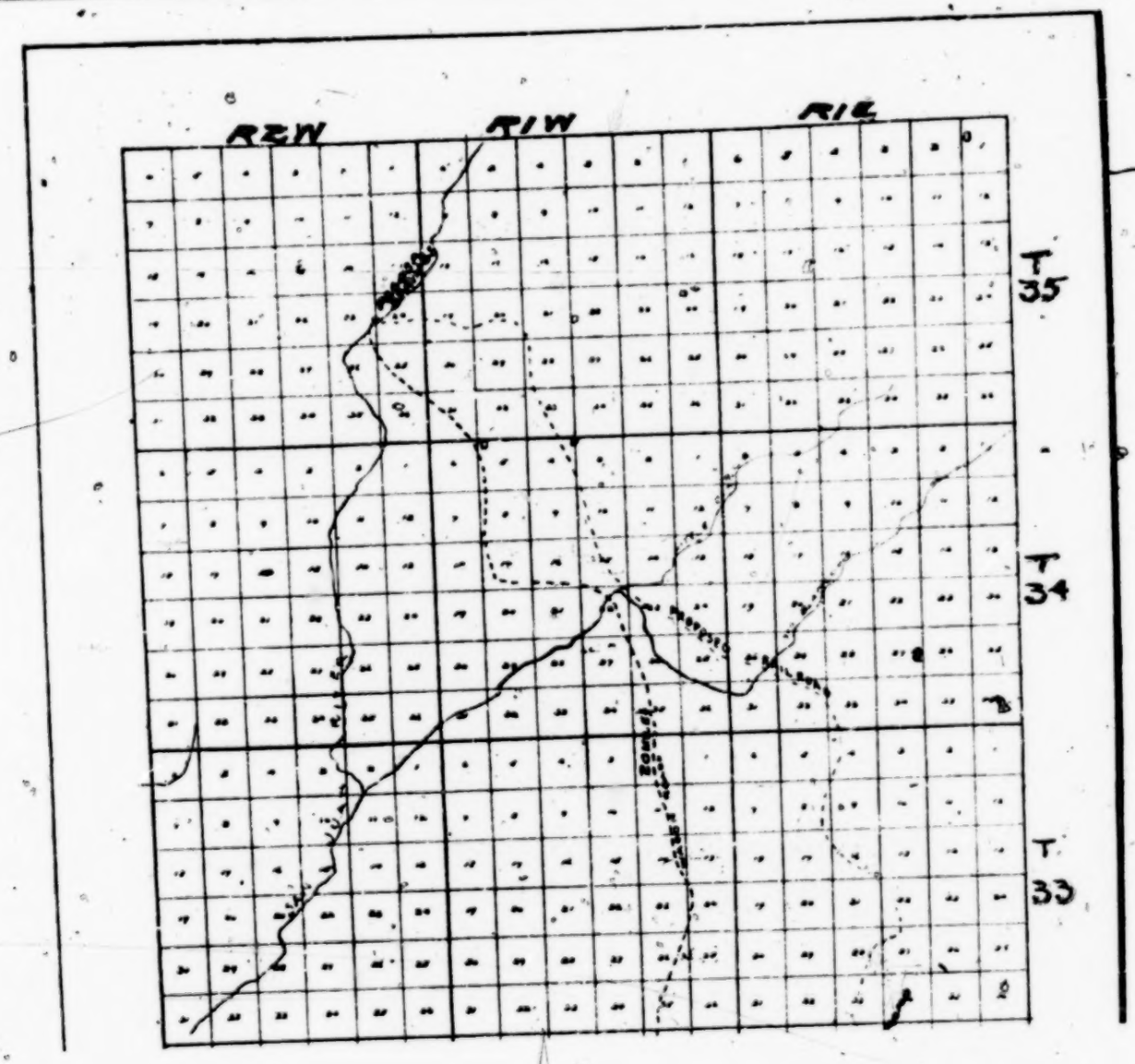
in Township 32 (N. of S.), Range 1 (E. of W.) of

Meridian, County of Archuleta

of Colorado, with the adjacent Towns... and Post Offices.

It is requested that the exact site of the proposed or existing Post Office, the nam... roads to the adjoining offices, and the larger streams or rivers, be marked on this diagram, to be returned as soon as possible to the Post Office Department.

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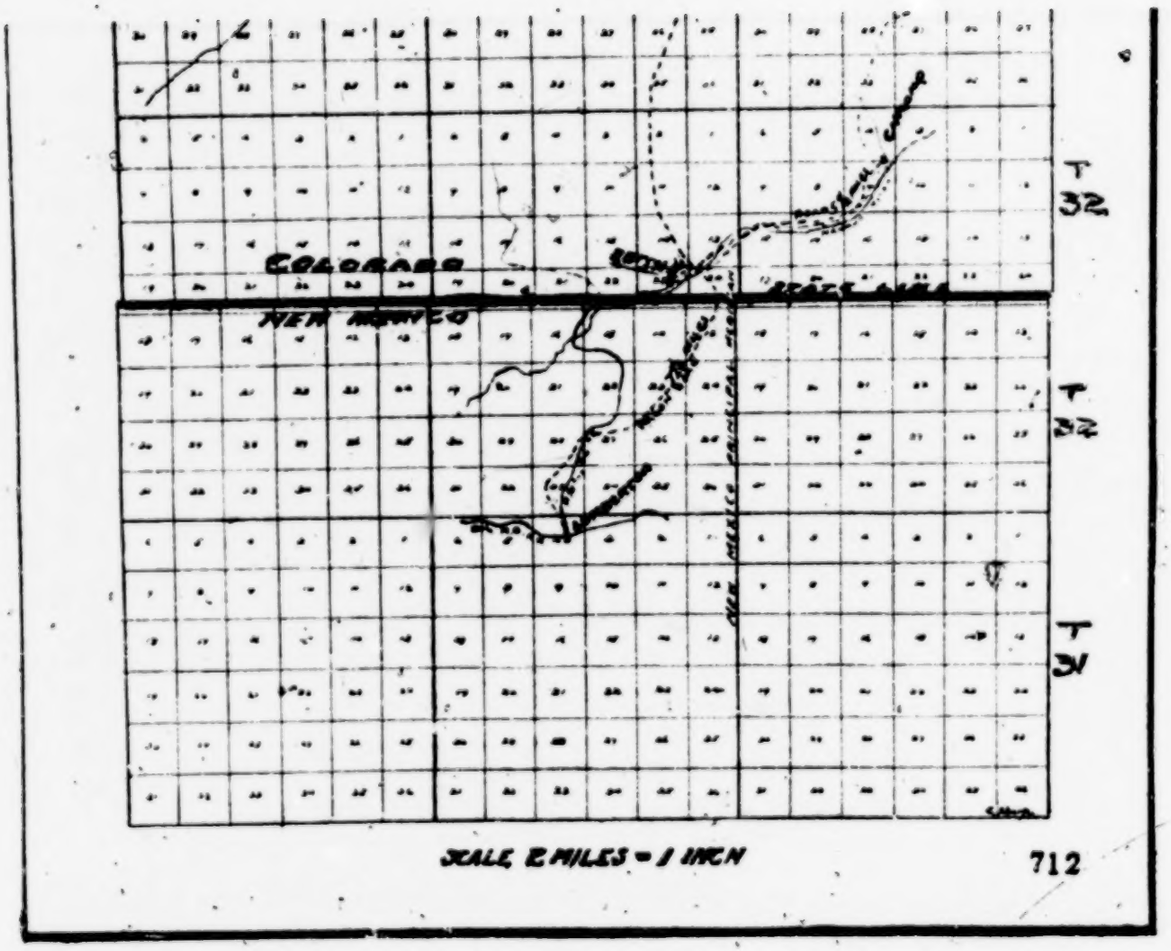
COLORADO
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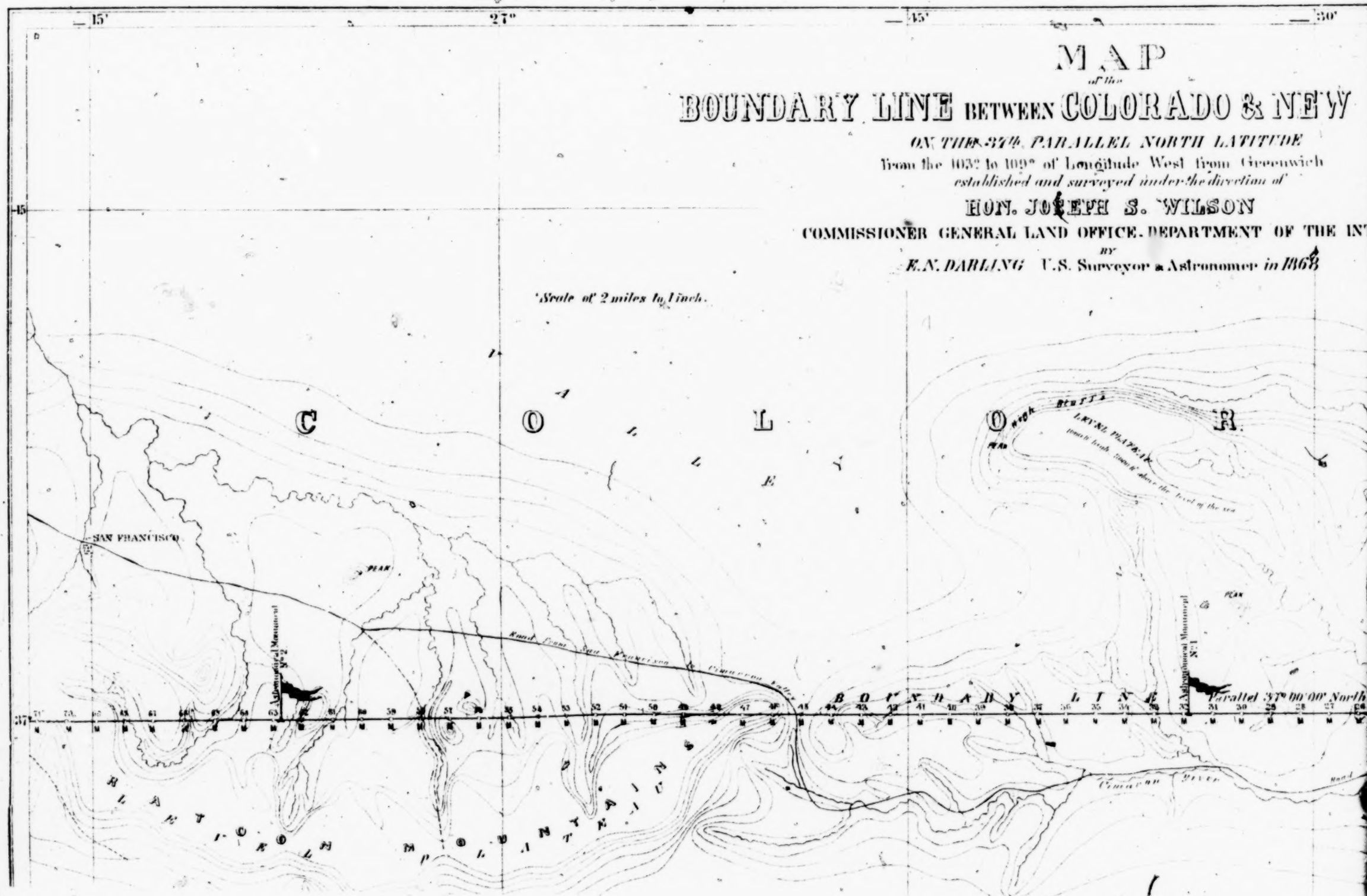
Received with Mr. Darling's letter of April 14. 1869 Survey paid per Gen. Land Office Report No. 12 / 20 May 3. 18



No 12/20 May 3. 1862

Sheet N°1.

—30'

—15'

Longitude West from Washington

26°

O & NEW MEXICO

LATITUDE

on Greenwich

ection of

SON

MENT OF THE INTERIOR

omer *in 1868*

HIGH PLATEAU

R A D O

Parallel 37° 00' 00" North Latitude.

INITIAL MONUMENT

Latitude 37° 00' 00"

Longitude 103° 00' 00"

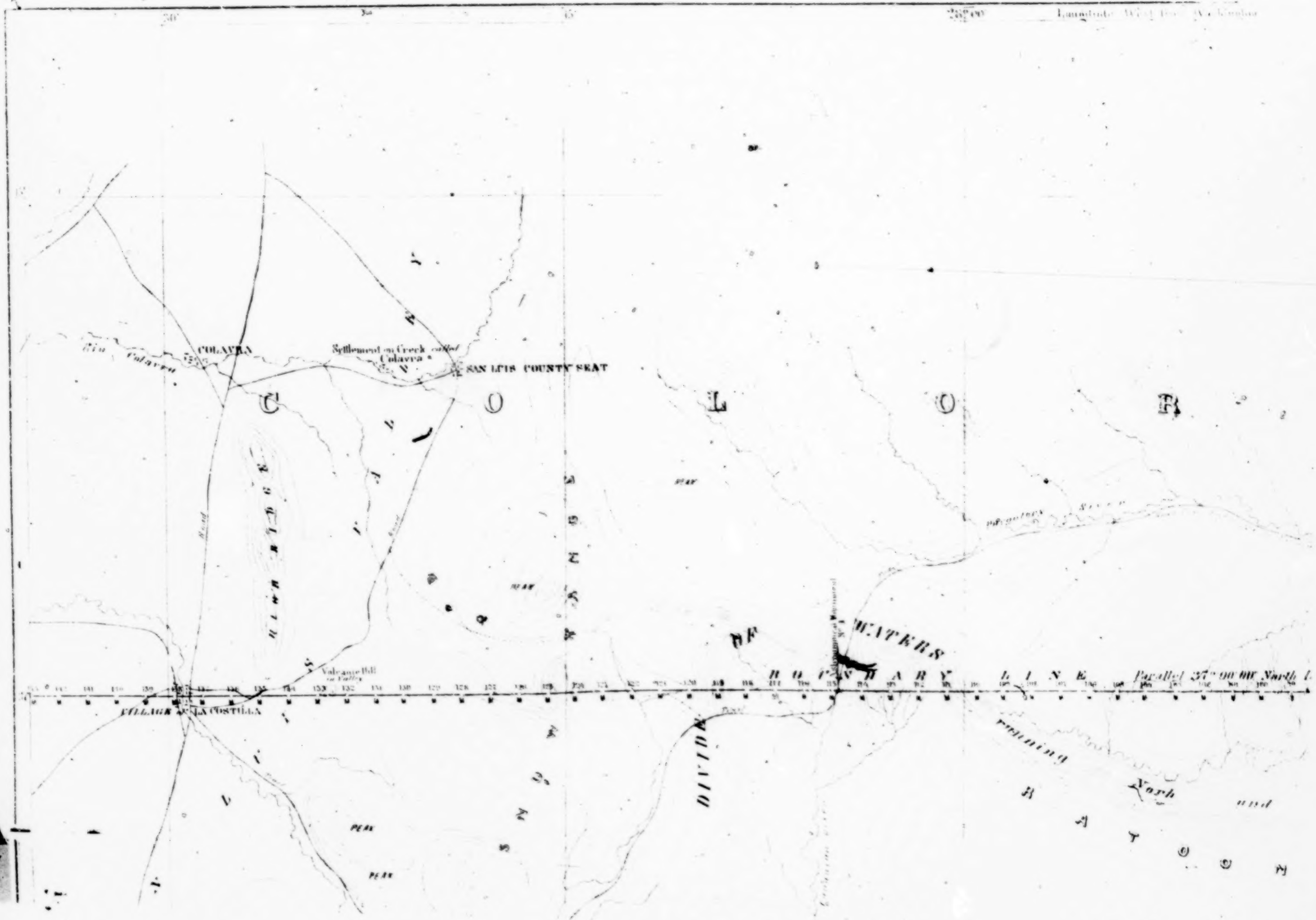
Road

Cimarron River

M A R O N

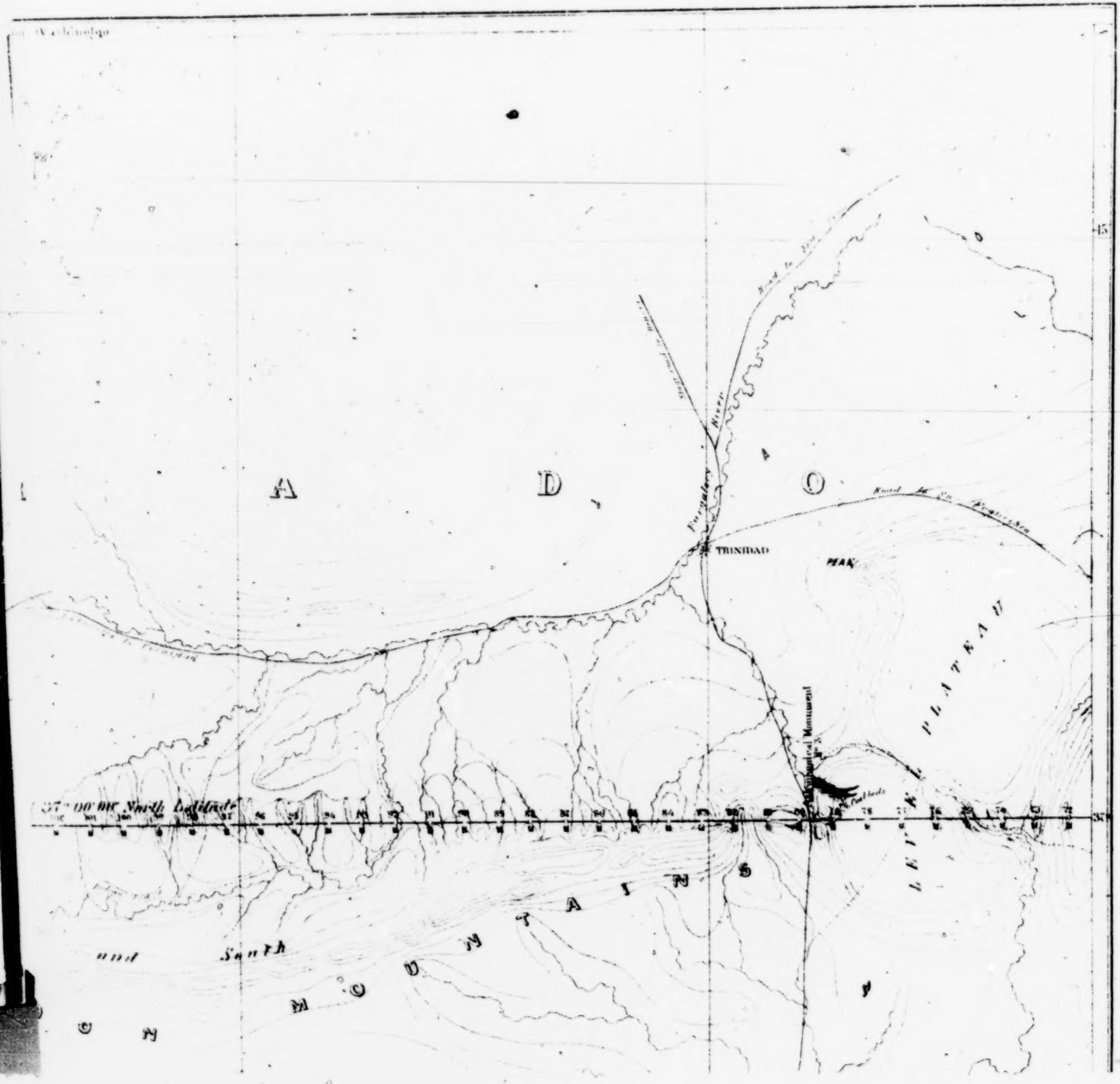
New Mexico

15'

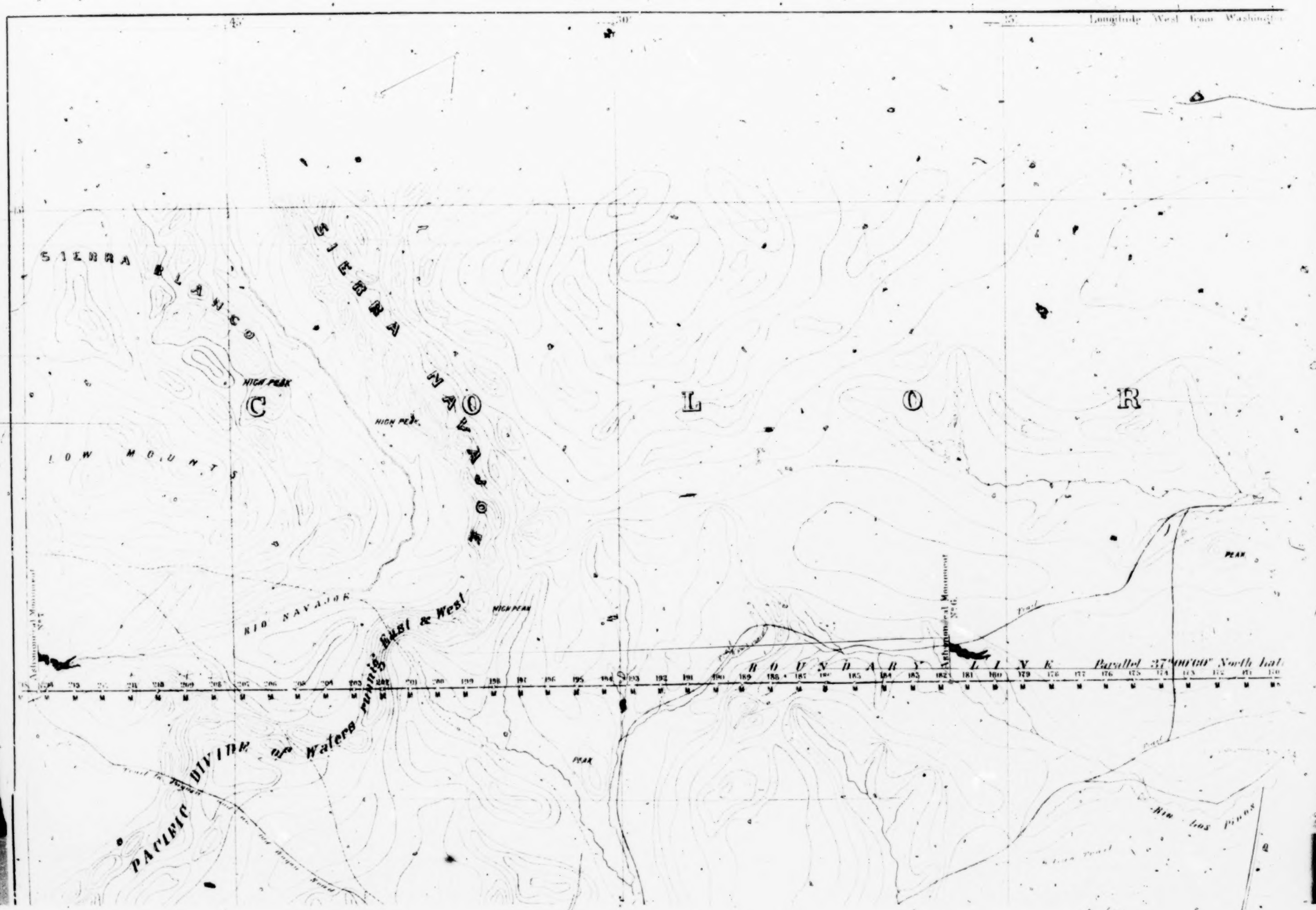


COLAVRA
Rio Colavra
Settlement on Creek called Colavra
SAN LUIS COUNTY SEAT
C O L O R
Volcanic Hill in Valley
VILLAGE OF LA COSTILLA
DIVIDE
OF WATERS
BOUNDARY LINE
Parallel 37° 00' 00" North
Running North and
PEAK
PEAK

Sheet No. 2.



A D O
TRINIDAD
PEAK
Fourgatory River
Road to Fort
Road to San Francisco
Monument No. 3
Cuttings
37° 00' 00" North Latitude
LEVEL PLATEAU
MOUNTAINS
and South



Longitude West from Washington
SIERRA BLANCO
SIERRA NAVAJOE
HIGH PEAK
HIGH PEAK
HIGH PEAK
PEAK
PEAK
C O L O R
LOW MOUNTS
RIO NAVAJOE
PACIFIC DIVIDE of Waters running East & West
BOUNDARY LINE
Parallel 37°00'00" North Lat
Astronomical Monument No 1
Astronomical Monument No 6
Trail
Rio Los Pinos

Longitude West from Washington

R A D O

CONEJOS

Rio Conejos

Rio San Antonio

STANTHONY VILLAGE

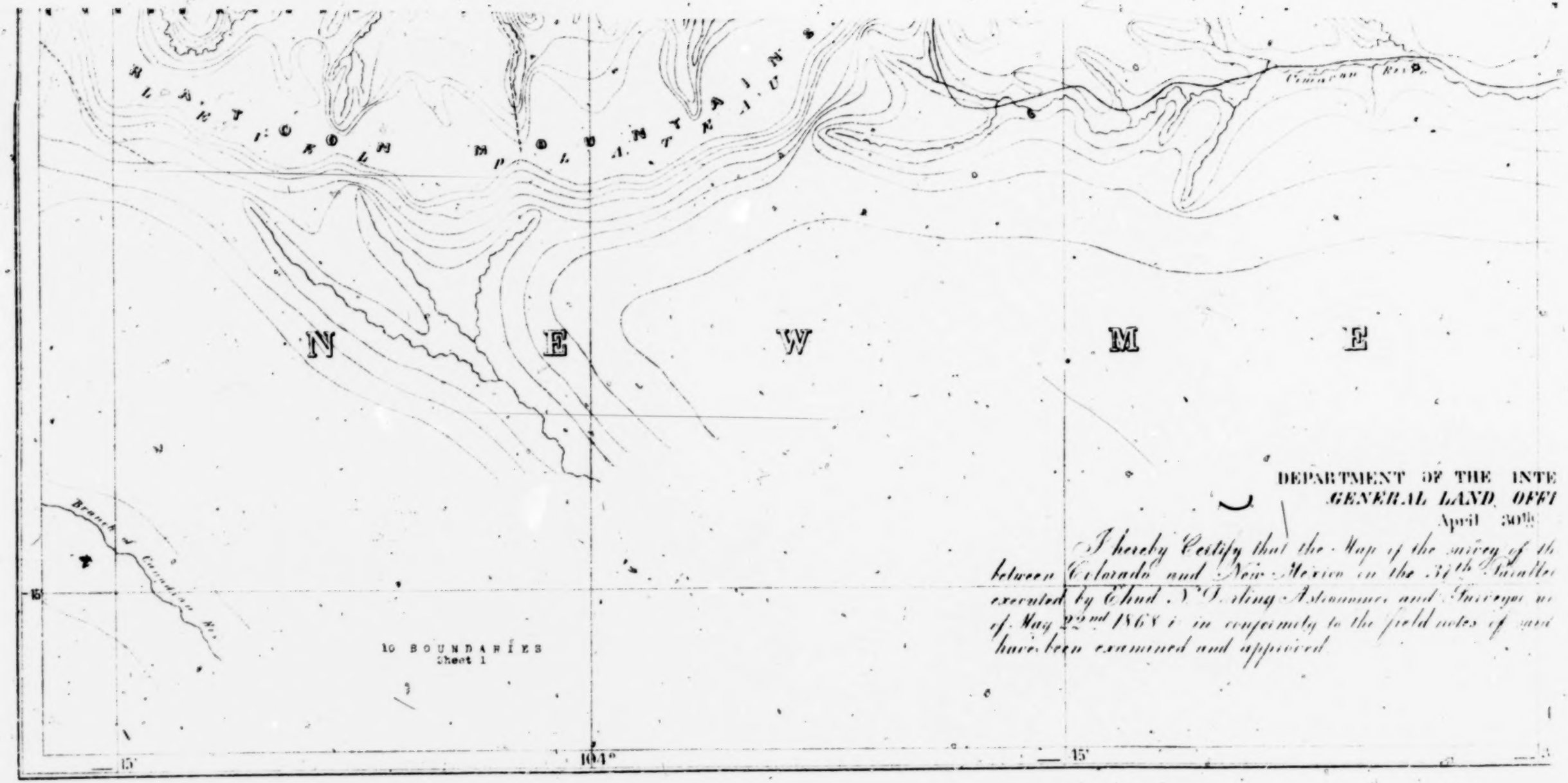
Parallel 37° 00' 00" North latitude.

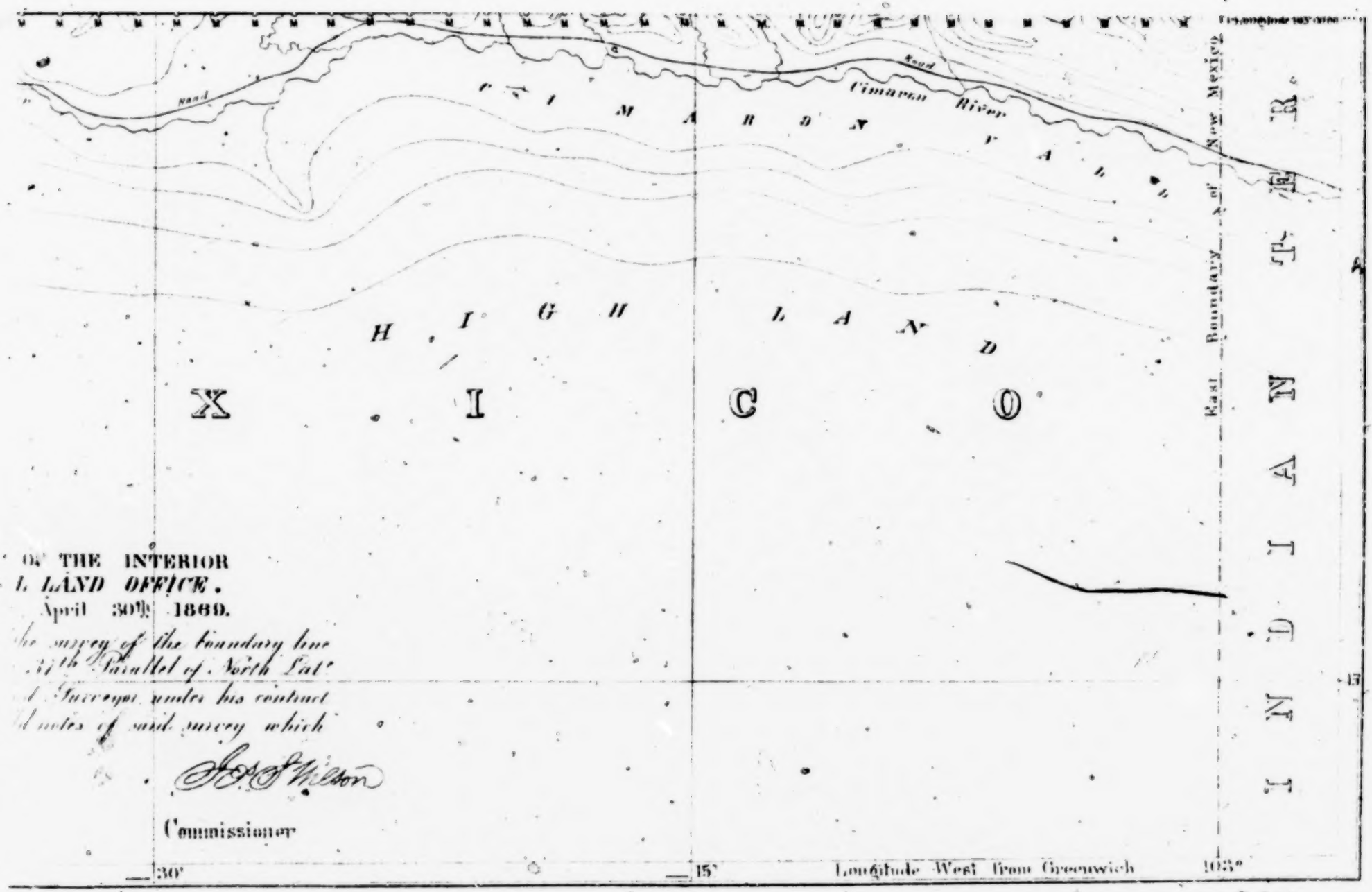
Rio San Antonio

Rio los pinos

SAN ANTONIO MOUNT

UTE PEAK
13800 ft above Valley


N E W M E
Branch of Canadian Riv.
10 BOUNDARIES
Sheet 1
15'
104°
15'
DEPARTMENT OF THE INTE
GENERAL LAND OFFI
April 30th
I hereby Certify that the Map of the survey of th
between Colorado and New Mexico on the 37th Parallel
executed by Chud N. Farling Astronomer and Surveyor u
of May 22nd 1868 in conformity to the field notes of sard
have been examined and approved



OF THE INTERIOR
L LAND OFFICE.
April 30th 1869.

he survey of the boundary line
36th Parallel of North Lat.
d Surveyor under his contract
d notes of said survey which

J. J. Wilson

Commissioner

VILLAGE DE LA CASTILLA

PEAK

PEAK

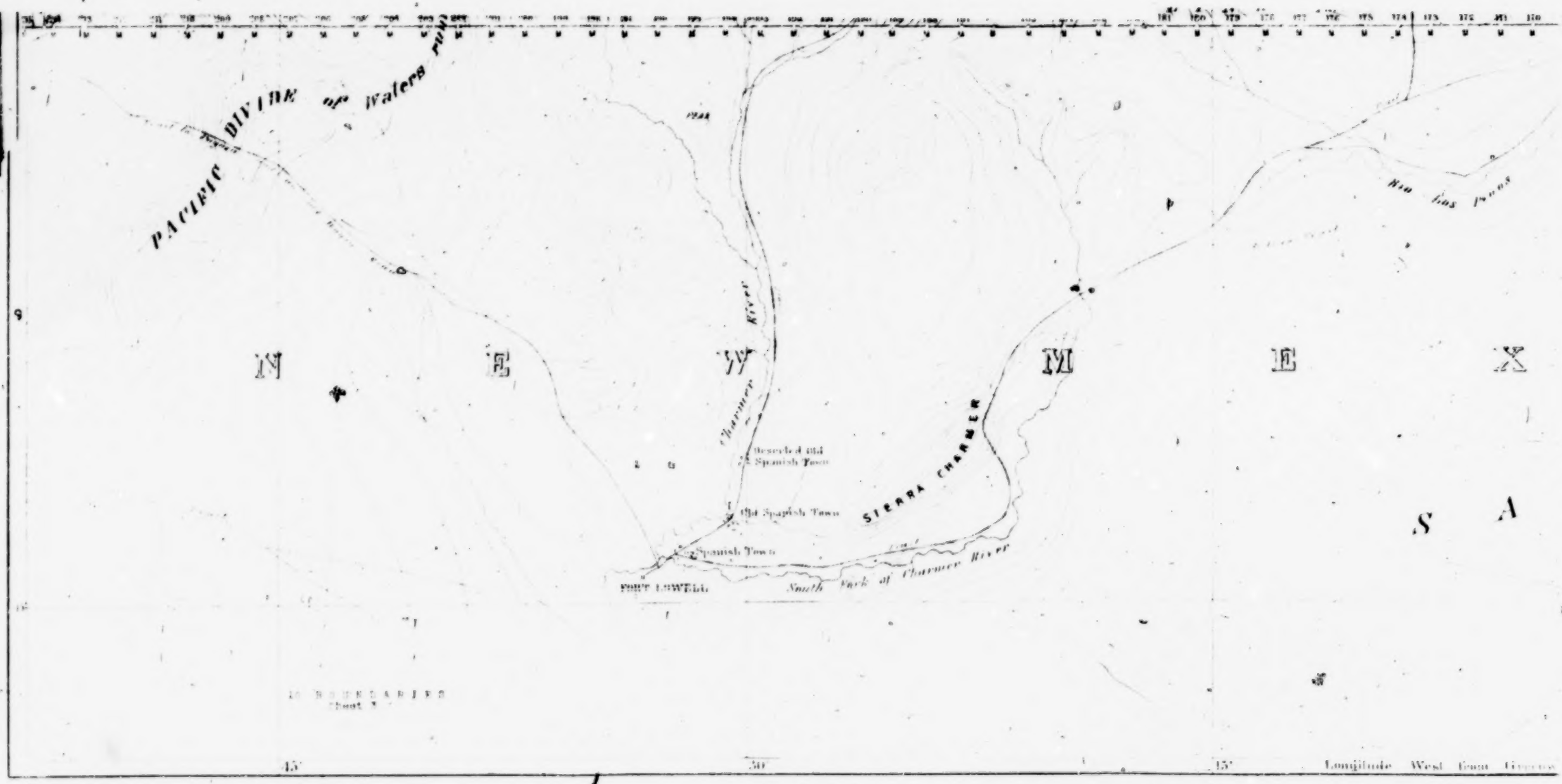
PEAK

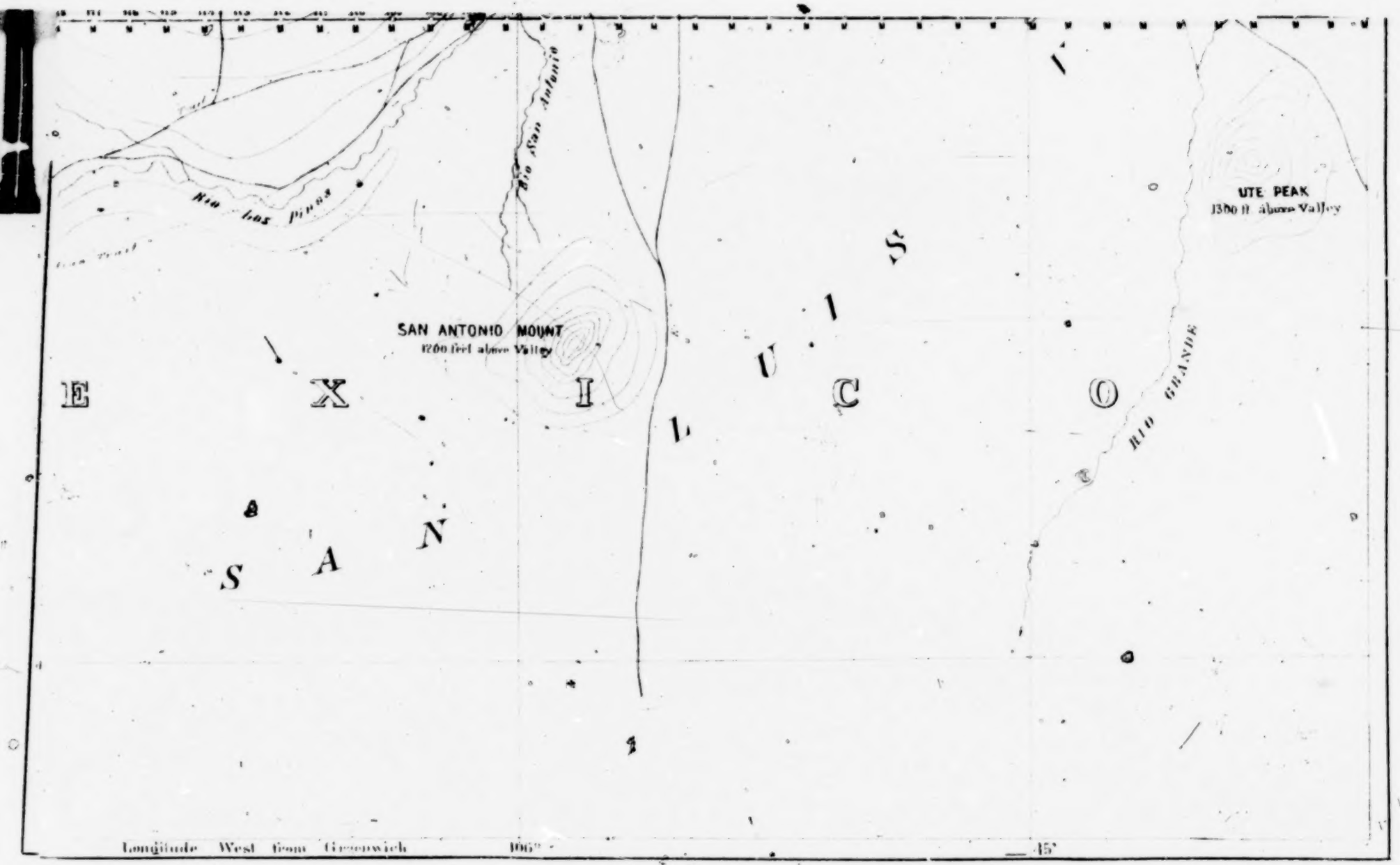
Road

Road

Road

715


PACIFIC DIVIDE of Waters run
N E W M E X
S A
Charmer River
Deserted Old Spanish Town
Old Spanish Town
Spanish Town
FORT LOWELL
SIERRA CHARMER
South Fork of Charmer River
Rio Los Pinos
45'
30'
15'
Longitude West from Greenw


Rio San Antonio
Rio los Pinos
SAN ANTONIO MOUNT
1200 feet above Valley
UTE PEAK
1300 ft above Valley
RIO GRANDE
E X I C O
S A N
Longitude West from Greenwich
106°
45'

A correct map of the locality might be furnished by the county surveyor, but this must be without expense to the Post Office Department.

All which I certify to be correct and true, according to the best of my knowledge and belief, this 28th day of Sept., 1895.

(Sign full name.) Edgar M. Biggs, Proposed P. M.

I certify that I have examined the foregoing statement, and that it is correct and true, to the best of my knowledge and belief.

(This must be signed by Postmaster at nearest office.)

Martha M. Price, Postmaster, Chrome, Colo

[On left-hand margin.] Be careful to answer the inquiries fully and accurately, or the case will not be acted upon.

[On right-hand margin.] Applications for post offices should be accompanied by petitions of the citizens interested.

(Here follow two diagrams, marked side folio pages 711 and 712)

[fol. 713] COLORADO EX. No. 5.

New Mexico v. Colorado, Orig. No. 17. P. 17 of Testimony. 5 Sheets.
D. O. Morgan, Exr.

4—207

Department of the Interior,
General Land Office,
Washington, D. C., January 20, 1922.

I hereby certify that the annexed photostat copies of plats of Colorado-New Mexico Boundary, 1869, in five sheets, are true and literal exemplifications of the plats of survey to which they relate except reduced scale.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

Geo. R. Wickham, Assistant Commissioner of the General Land Office. (Seal of the United States General Land Office.)

(Here follow Colorado Exhibits Nos. 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 19, marked side folio pages 714-731, inc.)

[fol. 732 & 733] IN THE SUPREME COURT OF THE UNITED STATES OF AMERICA

[Title omitted]

Certified Proofs, Evidence, Testimony, Offers, and Proceedings in said cause in said court taken and extended by Henry C. Luther, Examiner, at Post Office Building, City and County of Denver in the State of Colorado, on the Seventeenth, Eighteenth and Nineteenth days of July, A. D. 1922; pursuant to the orders of court and agreements of counsel, all forwarded on this 21st day of September, A. D. 1922, Thru the United States Mail to the Clerk for filing in said cause in said court, Washington, District of Columbia.

[fol. 734] IN THE SUPREME COURT OF THE UNITED STATES OF AMERICA

[Title omitted]

LETTER OF TRANSMITTAL

To the Honorable the Clerk of the Supreme Court U. S. A., Washington, D. C.

SIR: In pursuance of the authority vested in me by the court, I have the great honor to forward to you for filing therein, all the proofs, evidence and proceedings, so far taken by me, as examiner, at Denver, Colorado, and will be pleased to have you duly acknowledge receipt therefor, and further stating that the same has been duly filed in your court in accordance with its order and my certificate thereunder, so that I may evidence of the closing of this particular part of the proceedings.

Truly yours, Henry C. Luther, Examiner.

Address me #302 State Office Bldg., Denver, Colorado.

[fol. 735] [Title omitted]

Previously and on July 3-6, 1922, at Washington, D. C., testimony in said cause, was first taken and transcribed by Examiner Douglas O. Morgan, to which reference is made to indicate complete record to date, July 19, 1922, last day of taking testimony in Denver in the same cause as shown at large infra.

[fol. 736] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

Appearances: Frank W. Clancy, Esq., counsel for the state of New Mexico; Hon. Victor E. Keyes, attorney general of Colorado, and William R. Parsons, assistant attorney general of Colorado, solicitors and counsel for the state of Colorado.

Pursuant to authority of the court and at the place and time hereinafter shown, the parties to the above entitled action, by their respective counsel, offered and adduced the following testimony, exhibits, proofs and proceedings, to-wit:

[fol. 737] [Title omitted]

Testimony, evidence, proofs and proceedings taken at the offices of the United States Surveyor General and the Supervisor of Surveys of the General Land Office, 4th floor, United States Post Office Building, Stout and Eighteenth streets, in Denver, Colorado, on the seventeenth, eighteenth, and nineteenth days of July, A. D. 1922, before Henry C. Luther, examiner, in pursuance of the order of the court and agreement of the parties hereto duly approved by the court, as per the files, and also set out in full in the transcript of testimony made by Douglas O. Morgan at pp. 4, 5, and 6, and therefore not here repeated.

Examiner Henry C. Luther: My oath as examiner faithfully and impartially to discharge and perform the duties devolving upon me is as follows, to-wit:

[fols. 738 & 739] OATH OF EXAMINER—Omitted: printed side page 581 ante.

[fol. 740] Examiner Luther: Are you ready to begin taking testimony gentlemen?

Mr. Clancy: Yes sir.

Mr. Ramsey: I hand you form of oath to be administered to witnesses.

Examiner Luther: We will proceed with Mr. Clancy's witnesses.

[fol. 741] The following oath was administered to each witness, viz:

"You do solemnly swear by the Ever Living God that the testimony you are about to give in the cause wherein the State of New Mexico is plaintiff and the state of Colorado is defendant, in the Supreme Court of the United States, shall be the truth, the whole truth and nothing but the truth."

[fol. 742] Thereupon the plaintiff, the state of New Mexico, to maintain the issues upon its part, introduced the following testimony, to-wit:

[fol. 743] July 17, 1922, 1st day, 2 p. m., proofs commenced.

Afternoon Session.

Mr. Frank W. Clancy: I offer in evidence the notes of the survey made by H. B. Carpenter of the boundary line between Colorado and New Mexico. It is agreed by counsel that as the said notes are set out in the bill of complaint in this cause, and therefore already

necessarily a part of the record, it is not necessary to have them repeated at the present time and place, thus unnecessarily incumbering the record with two copies, but that the copies set out in the bill of complaint may be taken and received as the notes of the Carpenter survey.

Mr. V. E. Keyes: The defendant objects to the introduction of the notes of the Carpenter survey as being immaterial, irrelevant, and incompetent, to any issue in this cause.

Mr. Clancy: I will call Mr. Arthur D. Kidder.

[fol 744] ARTHUR D. KIDDER, called as a witness on behalf of the plaintiff, the state of New Mexico, having been first duly sworn according to law, to testify the truth, the whole truth, and nothing but the truth, in the cause now pending, upon his oath testified in evidence as follows, viz:

Direct Examination by Frank W. Clancy, Counsel for the State of New Mexico.

Q. Mr. Kidder state your name and occupation?

A. A-r-t-h-u-r D. K-i-d-d-e-r. Field surveys of the general land office.

Q. What is the nature of your duties in that employment?

A. I have charge of the field work in the eastern survey district.

Q. Have you ever known a man by the name of H. B. Carpenter, an engineer?

A. I have.

Q. Do you know whether he is living or dead?

A. I do.

Q. Is he still alive?

A. Mr. Carpenter is dead.

Q. Do you know how long since he died, more or less?

A. To the best of my recollection, Mr. Carpenter died about eight years ago.

Q. Did you ever have any connection with the work done by Carpenter in surveying of the boundary between Colorado and New Mexico?

A. I did.

Q. State what it was?

A. I was instructed by the Commissioner of the General Land Office to accompany the astronomical party.

Q. Employed by Carpenter?

A. Yes, to verify the astronomical observations made by the astronomer in the employ of Carpenter.

[fol 745] Q. Who was the astronomer?

A. Augustus MacConnel.

Q. Do you know whether he is living or dead?

A. I do.

Q. Is he alive?

A. Mr. MacConnel is dead.

Q. How long since he died as far as you know?

A. To the best of my recollection he died about six years ago.

Q. Had you had any experience in such astronomical work as that which you assisted Mr. MacConnel?

A. I had.

Q. What experience had you in such work?

A. Mr. MacConnel and I were associated together in making astronomical observations on the Red River in the spring of 1902 we worked together for a period of about three months.

Q. Was that the first work of that kind you had done?

A. That was the first work I had done in the field. I had practice in observatory work prior to that time, but no field work prior to that time.

Q. You had the qualifications necessary for such work as that in which you assisted Mr. MacConnel?

A. Yes sir.

Q. Can you briefly state to the examiner what were your qualifications for such work?

A. During the years from 1895 to 1899 I attended the Rose Polytechnic Institute, where I pursued the course of civil engineering in which I was graduated in the year 1899. Subsequently I took a post graduate course in astronomy at Columbian University, in Washington, D. C., and was given the advance degree of Master of Science and Astronomy. That year's work covered not only the subjects of general astronomy, but also an exhaustive study of mathematical astronomy and applied astronomy, with practical work, also, at the United States Naval Observatory.

[fol. 746] Q. Please state so that the ordinary lay mind can understand it, what was the astronomical work in which you assisted Mr. MacConnel?

A. I assisted Mr. MacConnel and verified his observations and calculations.

Q. State what was the nature of his observations and for what purpose they were made?

A. The purpose of the observations made by Augustus MacConnel, astronomer in charge of the work, was to determine the true parallel, thirty-seven degrees north latitude. In order to accomplish what was desired, a series of eight astronomical stations were located, approximately on the thirty-seventh parallel, at intervals of about fifty miles, on the boundary line between Colorado and New Mexico. At each station a series of observations were made for latitude, in which observations Mr. MacConnel pursued the most approved field methods. His method employed in the field is known as the Talcot method of observation for latitude. Stars, whose known position was obtained from accepted star catalogues, were observed in pairs. One star crossed the meridian north of the zenith, while the companion star was selected to cross the meridian about the same distance south of the zenith. The latitude of the stations could be calculated from each pair of stars. No less than twenty-five pairs of stars were observed at each station. The results were combined so as to obtain an average. The results show the astronomical station to be either north or south of the true thirty-seventh parallel, and the exact amount away from the parallel. From this data al-

calculations are made of the proper adjustment or distance from the stations where the observations were made to the true thirty-second parallel, the monument was then established on the true thirty-second parallel, to control the latitude of the line to be run and established by the surveying party.

[fol. 747] Q. Then these true astronomical monuments were established before the surveying party made the line between the monuments?

A. Yes, sir.

Q. Did you assist MacConnel in making the observations, or did you only verify the results of his calculations?

A. I assisted MacConnel in helping him make the adjustment of the instruments, and particularly in recording the observations and readings made by Mr. MacConnel. During the process of an observation of a pair of stars, it was necessary to note the name of each star, and certain readings of the instrument, also to note the exact astronomical time of observation. Mr. MacConnel, as chief astronomer, made all of these readings, while it was my duty to record them. I assisted MacConnel in making all the calculations of the true latitude of the station as determined by his observations, after which we exchanged places and I conducted a series of observations which Mr. MacConnel recorded. In this way I was both assisting Mr. MacConnel and was verifying the results of his observations.

Q. From your knowledge and experience as an astronomer in such work, what would you say as to the accuracy and certainty of the results obtained by MacConnel with your assistance?

Mr. Keyes: We object to that question as being irrelevant and incompetent.

A. Mr. MacConnel adopted the most approved field methods in making the astronomical observations, and each station is as nearly correct as could reasonably be expected.

Mr. Keyes: We move to strike that as irrelevant and incompetent.

Mr. Clancy: Mr. Kidder, go on with your answer.

Mr. Kidder: Where did I leave off?

[fol. 748] Examiner Luther: "As could reasonably be expected."

Mr. Kidder (continuing): It is my opinion that any of the astronomical stations occupied by MacConnel can be reoccupied and practically the identical results can be obtained by any competent astronomer.

Mr. Clancy: Did you have occasion to know anything about the proof of the work prepared by Carpenter in making the survey of the line between these astronomical stations?

Mr. Kidder: I had occasion to organize a surveying party to retrace Carpenter's line from astronomical station No. 5 to astronomical station No. 6. Astronomical station No. 5 was located near the summit of the Culebra mountains, on the San Francisco pass. Astronomical station No. 6 was located near Trinchera Creek.

Q. What was the retracing of Carpenter's line between these stations?

A. In the fall of 1906.

Q. What results did you find from your retracing?

A. We found as a result of the retracement that my observations for the azimuth of the line between astronomical station No. 5 and astronomical station No. 6, closely verified the azimuth of the line as reported by Carpenter.

Q. Does anything else occur to you in which you can give information regarding the Carpenter survey?

A. The Carpenter survey was executed in accordance with detailed specifications as to the manner in which the observations were to be made, and the manner in which the thirty-seventh parallel of latitude was to be marked at each astronomical station, etc., also as to how the line was to be run between the astronomical stations, the manner of connecting astronomical stations, and the manner of marking the line at intervals of one mile. To the best of my knowledge and belief Carpenter followed his instructions to the letter and his work was as accurate as could be expected under the specific instructions issued to him. There was no detail of the astronomical [fol. 749] observations and calculations but what was given with the utmost care and consideration by astronomer MacConnell and fully verified by me.

Q. In the course of your work have you had occasion to become familiarized with the earlier survey known as the Darling survey?

A. My knowledge of the Darling survey, and of the line and monuments established by him, was only incidental and was obtained only by reading or hearing of the reports of others engaged in making the retracements of the Darling line. I have had no occasion in any capacity to make any retracement of the Darling line.

Mr. Clancy: I think that is all I want to ask Mr. Kidder.

Cross-examination by V. E. Keyes, Attorney General and Counsel for Defendant, the State of Colorado:

Q. Mr. Kidder, you do not regard, do you, that the so-called Carpenter line is a true, precise parallel of latitude?

A. No sir.

Q. How many astronomical stations were located in the so-called Carpenter survey?

A. Eight.

Q. Why is it that the line connecting eight astronomical stations would not make a true, precise parallel of latitude?

A. For the reason that the latitude at one station is more or less affected by inequalities of the mass of the earth's surface at that station. Lines projected east and west from any known astronomical station and carried on a true parallel to the adjoining astronomical station, on the east and west, must necessarily disagree in latitude with the adjoining stations, by whatever amount the individual

sfatio:, may be affected by the inequalities of the mass of the earth's crust at those places.

[fol. 750] Q. Is it not true that the more scientific way to procure a precise parallel of latitude is by the method known as "triangulation" rather than by astronomical methods?

A. Yes, provided that the method of triangulation is sufficiently elaborate to detect and allow for adjustment of all station error at each one of the astronomical stations occupied. We must remember that triangulation alone will not determine the latitude of a line. The triangulation can be used only to connect the astronomical stations. The practical result of the trianguiation method is combining the results of all the stations so that an average result is employed for the whole of the line.

Q. The scientific method of triangulation was not used at all in the Carpenter survey, was it?

A. No sir.

Q. Or by you?

A. No, sir.

Q. What method of determining a precise parallel of latitude is the most approved method of the present day, and what method is recognized by the United States Coast and Geodetic Survey?

A. The method of triangulations in which a large number of astronomical stations are combined.

Q. And that use or method of triangulation would be, would it not, the best means to secure a precise parallel of latitude?

A. A precise parallel of latitude can be obtained and established without the method of triangulation. The method of triangulation is merely one of the ways in which a number of astronomical stations may be combined. A series of astronomical stations may be combined by running transit lines so as to connect the series of astronomical stations. This would be a practical way of establishing a precise parallel of latitude.

Q. This was not done, as I understand it, during the Carpenter survey, was it?

A. No sir; special instructions for the Carpenter survey required that the astronomical monument should be located on the thirty-[fol. 751] seventh parallel of latitude according to the observations at that station, and that all astronomical monuments should be connected and adjusted from one station to another on a plan specified in the instructions issued to Mr. Carpenter. The practical result of the method specified, is a line which is not due east and west at all places, but one which connects a series of astronomical stations, regardless of the station error of any one monument.

Q. Is it not true then that under the instructions received by Carpenter, if carried out, it was impossible for him to run a precise parallel of latitude?

A. Yes sir.

Q. When Carpenter reported to the general land office of the United States was it not found to be defective in several particulars?

A. The report referred to in your question was one made by others than himself, into which I have never examined, nor had occasion to examine.

Q. Were you not sent by the general land office to make corrections of the Carpenter survey?

A. No sir.

Q. Mr. Kidder, do you agree with the following statement made by E. Lester Jones, director of the United States Coast and Geodetic Survey, "In determining latitude by astronomic methods, the principle followed is to determine the angle between a known celestial body, such as the sun or a star, and the observer's zenith. Different instruments are used and different degrees of accuracy are obtained, varying from an error of one or two miles in sextant observations at sea to an error of ten to twenty feet with large instruments on shore. This error of ten to twenty feet must be understood to mean that any one station could be reoccupied and the observed latitude would agree with the preceding latitude within that distance.

"It is usual to conceive of the earth as being marked off into geographical compartments by parallels and meridians which are [fol. 752] smooth curves, properly spaced upon the ellipsoidal surface of the earth. As a matter of fact, the parallels and meridians are uniform in curvature and properly spaced only when located by triangulation and computed upon an ellipsoid which closely fits the shape of the portion of the earth delineated. When located by astronomical methods they are uniform neither in curvature nor in spacing"?

Is that correct?

A. I believe the statement to be correct.

Q. Mr. Kidder, do you agree with the following statement made by the same person, "In astronomical observations for latitude or longitude, the observer's zenith, which serves as a reference point for the angular measures to the sun or star, is determined by the levels on the astronomical instrument for, when the instrument is "leveled", it is in position to measure the zenith distance of a star. These levels, in turn, mark the direction of the force of gravity at that point, or the direction indicated by a plumb-line freely suspended. If, for any reason the plumb-line is not perpendicular to the mean surface, then the position determined astronomically will not be in proper relation to adjacent points not so affected. It has long been known to geographers and geodesists that nearby mountain masses and differences in the density of the earth's crust would so materially affect the direction of the plumb-line that an astronomic latitude or longitude would show a discrepancy of a half a mile or more, in extreme cases, when compared to the mean values obtained by triangulation methods.

"The discrepancies in geographical position of a point, due to the erroneous direction of gravity, are called deflections of the vertical. The magnitude of some of these deflections in the regions adjacent to Colorado and New Mexico will be seen by a comparison with some of the latitudes and longitudes obtained by precise tri-

[fol. 753] angulation which has been reduced to the North American Datum. This North American Datum was adopted as a reference datum for all triangulation in the United States and was so chosen as to bring the continental area of the United States, as a whole, into its proper geographical relation in latitude and longitude. When astronomic latitudes and longitudes are compared to the latitudes and longitudes obtained by triangulation, they show at once the deflections in the vertical and the direction of such deflections"? Do you also concur in that Mr. Kidder?

A. I do.

Q. Now Mr. Kidder do you also agree with the following statement made by the same person. "Taking the region in the vicinity of Colorado Springs (See Page 12, Figure of the Earth and Isostasy from Measurements in the United States), we find that a station in that city has a deflection in a north and south direction of -3".3 while one on Pike's Peak has a deflection of plus 9".96, a difference within a few miles of 1".2, which would correspond to a distance on the surface of the earth of about 129 feet. East of Colorado Springs two stations 60 miles apart exhibit a latitude discrepancy equal to 240 feet while if we compare Pike's Peak with a station 30 miles east of it, we find a comparative discrepancy of 680 feet.

"The entire western part of the United States has such extremes of elevation and so many variations in the density of the earth's crust, that it is very usual to find a 2" or 3" variation, in the deflection of the vertical, corresponding to errors of 200 or 300 feet in distance on the earth's surface, between points only a few miles apart, where such points are determined astronomically. The effect of these deflections are easily seen when we compare the latitudes and longitudes of the North American Datum of some of the state boundary monuments in the western part of the United States with their supposed astronomic positions.

[fol. 754] "A boundary monument on the northern boundary of the state of Kansas is nearly 880 feet north of the 40th parallel while a monument on the southern boundary of the state is over 500 feet south of the 37th parallel, thus making the state a quarter of a mile wider than was intended by its constitutional limits. A boundary monument between Colorado and Wyoming is almost 600 feet too far south when referred to the North American Datum. A monument between South Dakota and Nebraska is about 650 feet too far north and the monument at the northeast corner of Wyoming is over 800 feet too far south. Some of the boundary meridians located by astronomic methods show an even larger divergence from their true positions than do the boundary monuments on parallels. A boundary monument between Colorado and Utah is more than 2200 feet too far west and others have been found as much as 3300 feet from the location indicated as the true one by geodetic methods"?

What do you say of that?

A. I have no knowledge of the field facts referred to in the paragraphs which you have just quoted.

Q. Do you agree with the following statement made by the same official, "One additional effect of these deflections of the vertical is to be noted in the fact that a boundary line located by astronomic methods will form a zigzag line"?

A. I do.

Q. Do you agree with the following statement made by the same person, "It will thus be seen that the incongruities inherent in an astronomic determination of a boundary line are, to a certain extent, outside the power of the observer to correct. It will also be seen that it will be impossible to retrace an old line by such methods unless the same astronomic stations are occupied on the retracing as on the original survey. This will explain, in large part, the reason why successive surveys of a boundary line do not agree."?

A. I agree with the statement in part but not in whole. I will qualify my answer by saying that the last sentence of the paragraph [fol. 755] referred to, which says, "This will explain, in large part, the reason why successive surveys of a boundary line do not agree." This statement is misleading and in a measure incorrect. It is a part of the truth, but not the whole truth. It does not explain the difference in latitude between the Carpenter line and the Darling line.

Q. What line and survey is now recognized by the United States Land Office as the boundary line between Colorado and New Mexico?

A. I do not know.

Q. Is it not true that all public surveys made by the United States Land Office are now closed on the Darling line?

A. I do not know.

Q. Is it not true that this is the only line recognized by the United States Land Office for administrative purposes?

A. I believe that it is.

Q. What would you say as to that line and survey,—the Darling line—if you know, between Colorado and New Mexico, being recognized at the time Colorado became a state in 1876?

A. I do not know, further than that the Darling line was the only line at that time which had been established.

Q. And is the Darling line now, so far as you know, the only line recognized by the United States Land Office for administrative purposes, between Colorado and New Mexico?

A. I believe it is.

Q. Are you familiar with the township surveys in the region of the thirty-seventh parallel, between the one hundred and third and one hundred and ninth meridians?

A. Only in one or two townships.

Q. Is it not true that every township survey in the region of the thirty-seventh parallel between the one hundred and third and one hundred and ninth meridians is now closed on the Darling line or survey?

A. I do not know.

Q. Is it not true that the rule of the United States Land Office pertaining to surveys is the permanency and integrity of surveys [fol. 756] as executed, rather than precision and accuracy?

SIERRA LATIRA

C O L O R

N E W M E

SNOWY PLAIN

Rio Las Animas

Rio Florido

LOW HILLS
covered with Pine timber

Rio las Pinos

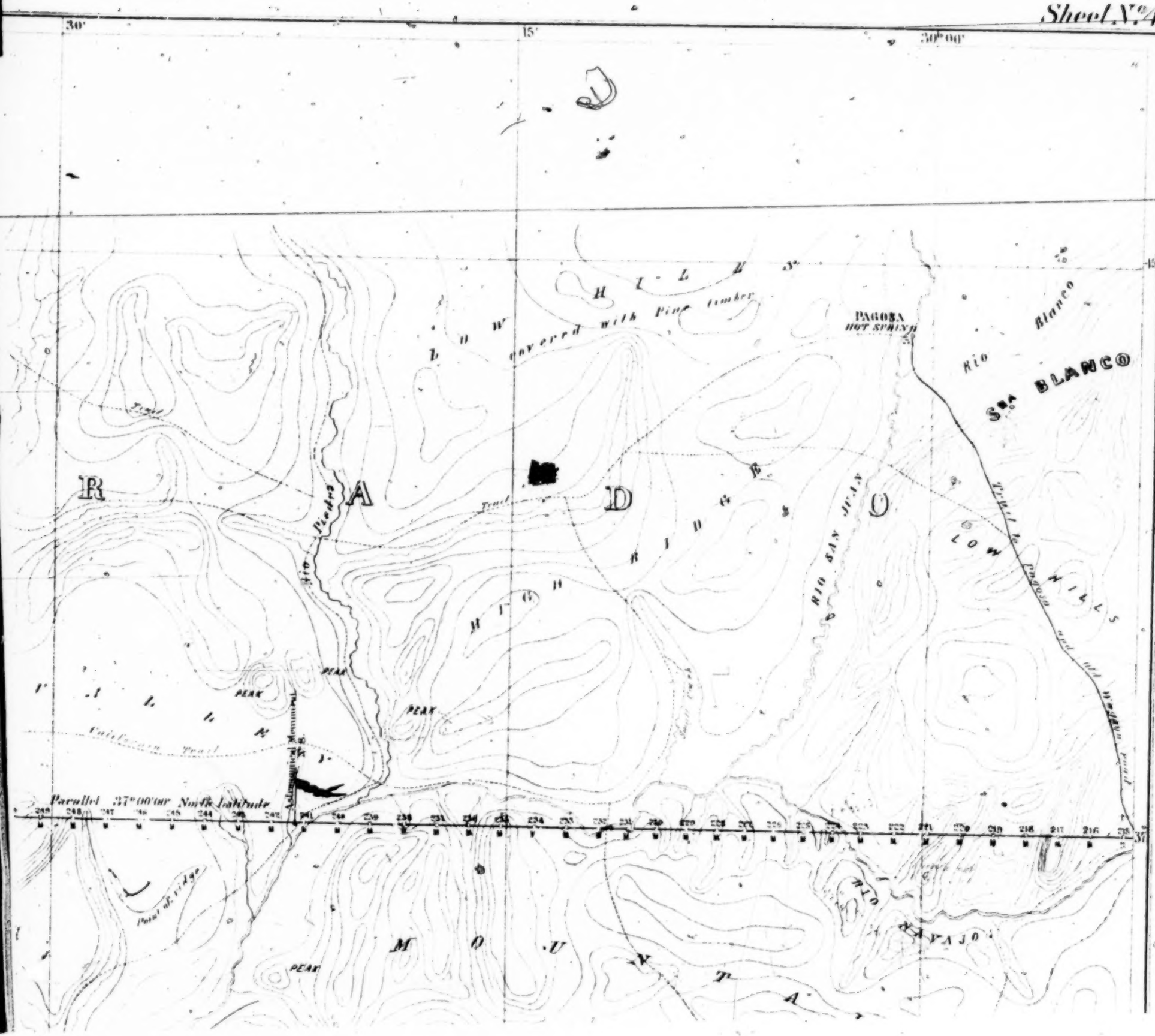
California Trail

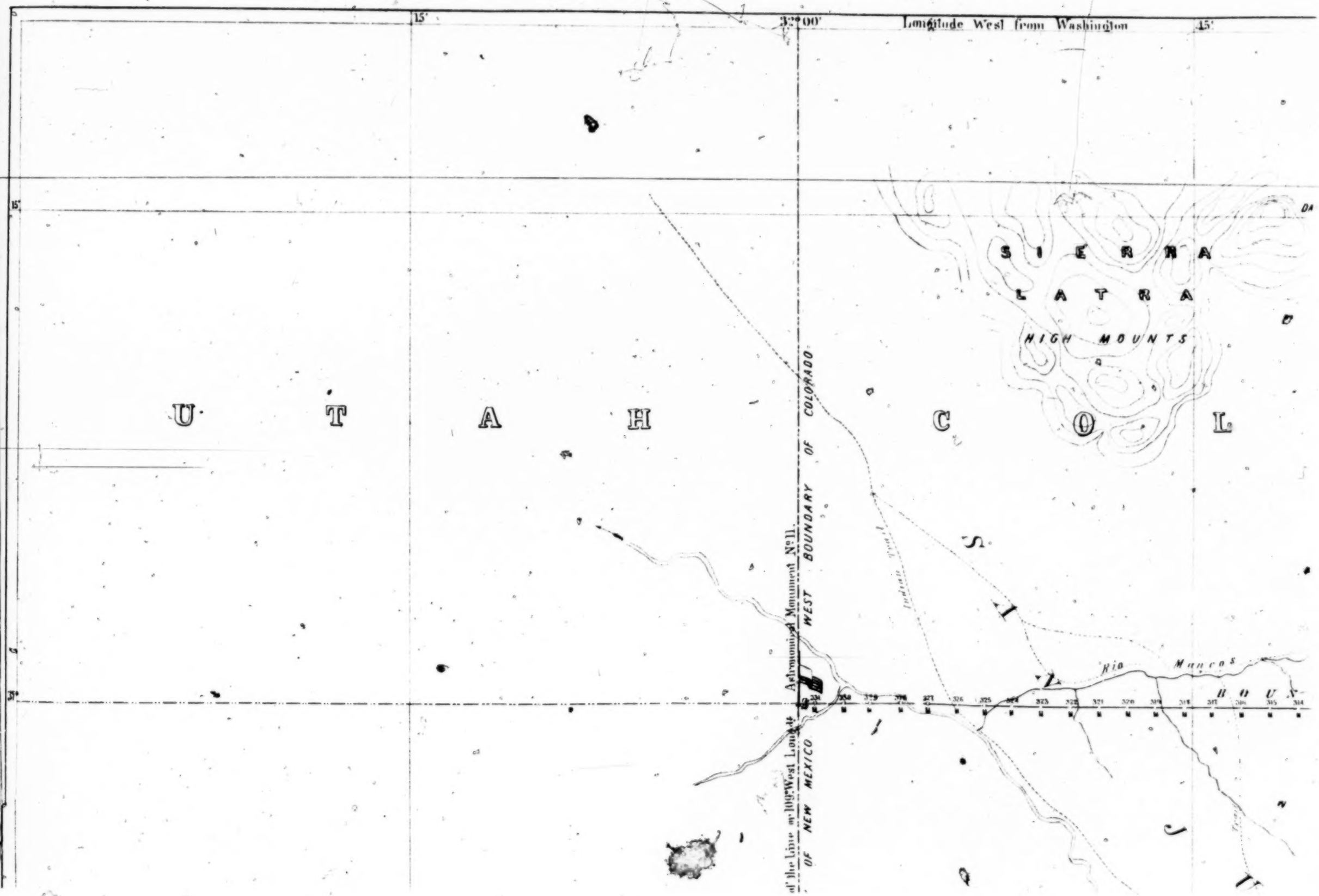
Rio la Matte

Indian Trail

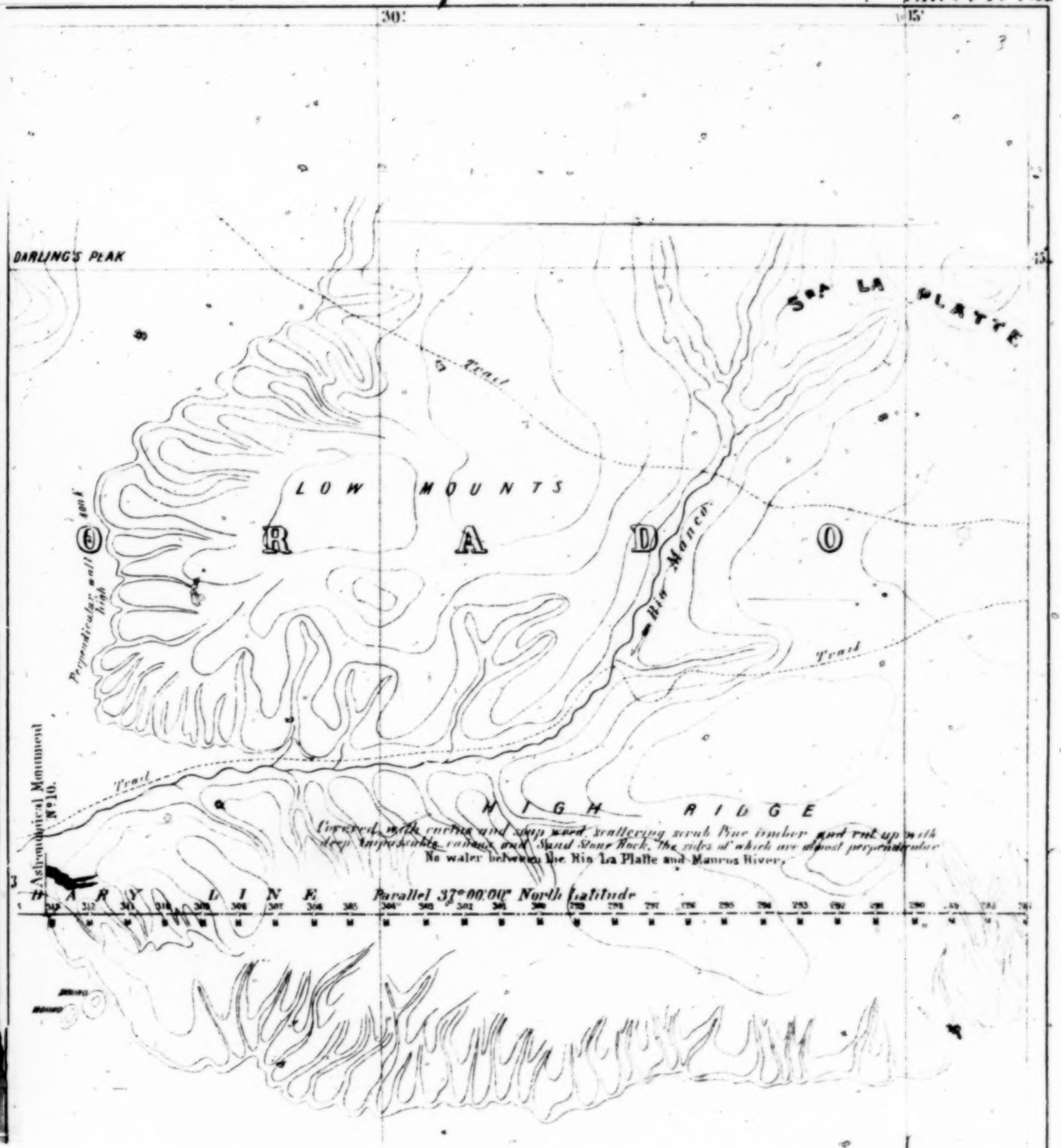
Trail

Trail

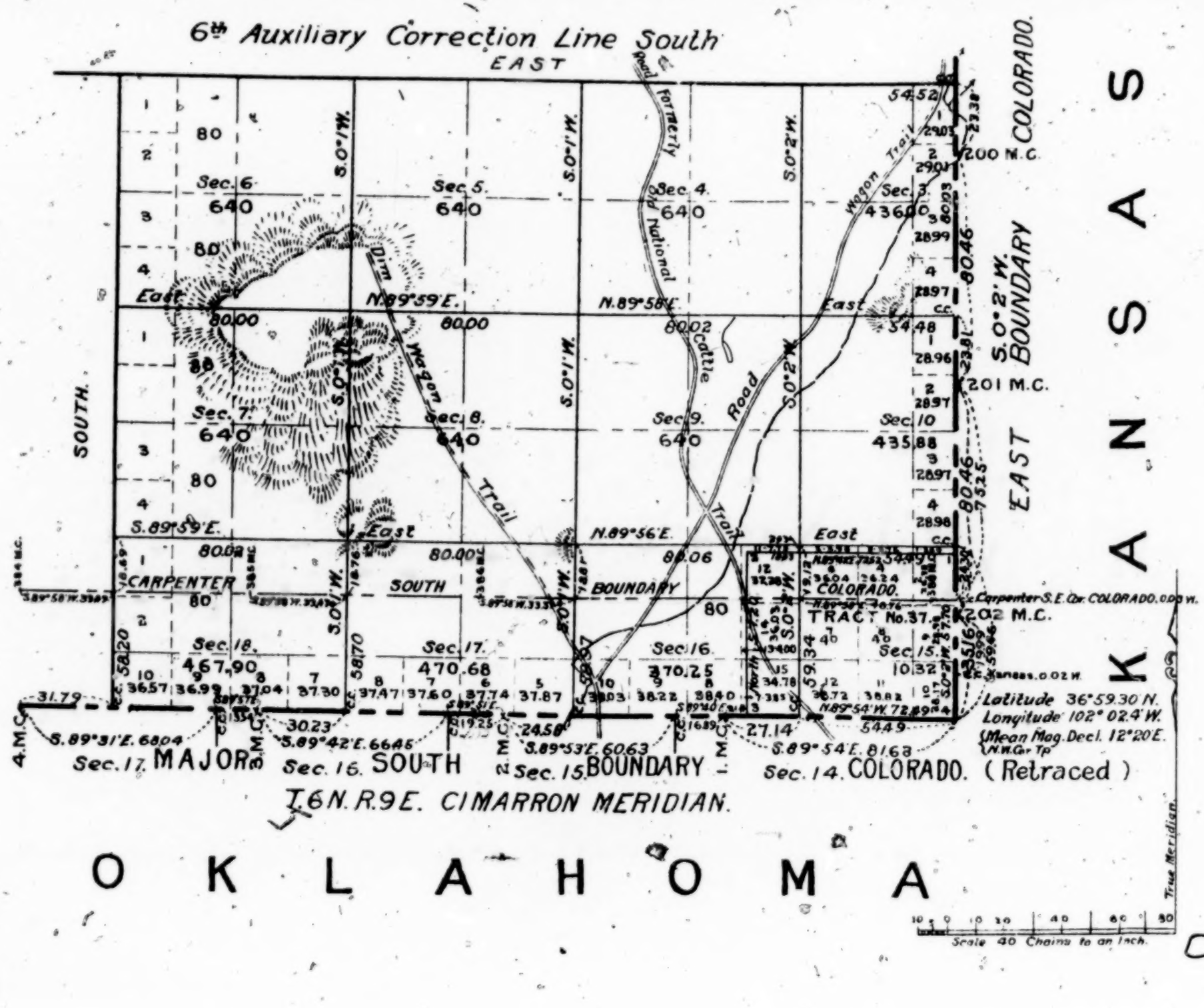

30'
15'
30° 00'
LOW HILLS
covered with Pine timber
PAGOSA
HOT SPRING
Rio Blanco
Sra BLANCO
R A D O
Rio Piedra
Trail
HIGH RIDGE
RIO SAN JUAN
LOW HILLS
Trail to Pagosa and old Wagon road
PEAK
PEAK
PEAK
Parallel 37° 00' 00" North Latitude
Point of ridge
PEAK
M O U N T A
RIO NAVAJO



Longitude West from Washington
15'
32°00'
15'
SIERRA
LATRA
HIGH MOUNTS
U T A H
C O L
Astronomical Monument No. 11.
WEST BOUNDARY OF COLORADO
OF NEW MEXICO
Rio Mancos


30'
15'
DARLING'S PEAK
S^{RA} LA PLATTE
Trail
LOW MOUNTS
O R A D O
Perpendicular wall 400 ft high
Rio Manco
Trail
Trail
HIGH RIDGE
Covered with cactus and soap weed, scattering scrub Pine timber and cut up with deep impassable canons and Sand Stone Rock, the sides of which are almost perpendicular
No water between the Rio La Platte and Manros River.
Ashmonical Monument No. 10.
DARY LINE
Parallel 37° 00' 00" North Latitude

Resurvey Fractional Township No. 35 South, Range No. 41 West of the 6th Principal Meridian, Color



Meridian, Colorado.

TRACT No.	SECTIONS	ENTRY and ENTRYMAN	ORIGINAL DESCRIPTION
37	15:16, T. 35 S. R. 41 W.		School Section 16,
			T. 35 S. R. 41 W.

N E W M E

SAN JUAN

Rio La Plata

Rio Los Animas

Trail to

RIO SAN JUAN

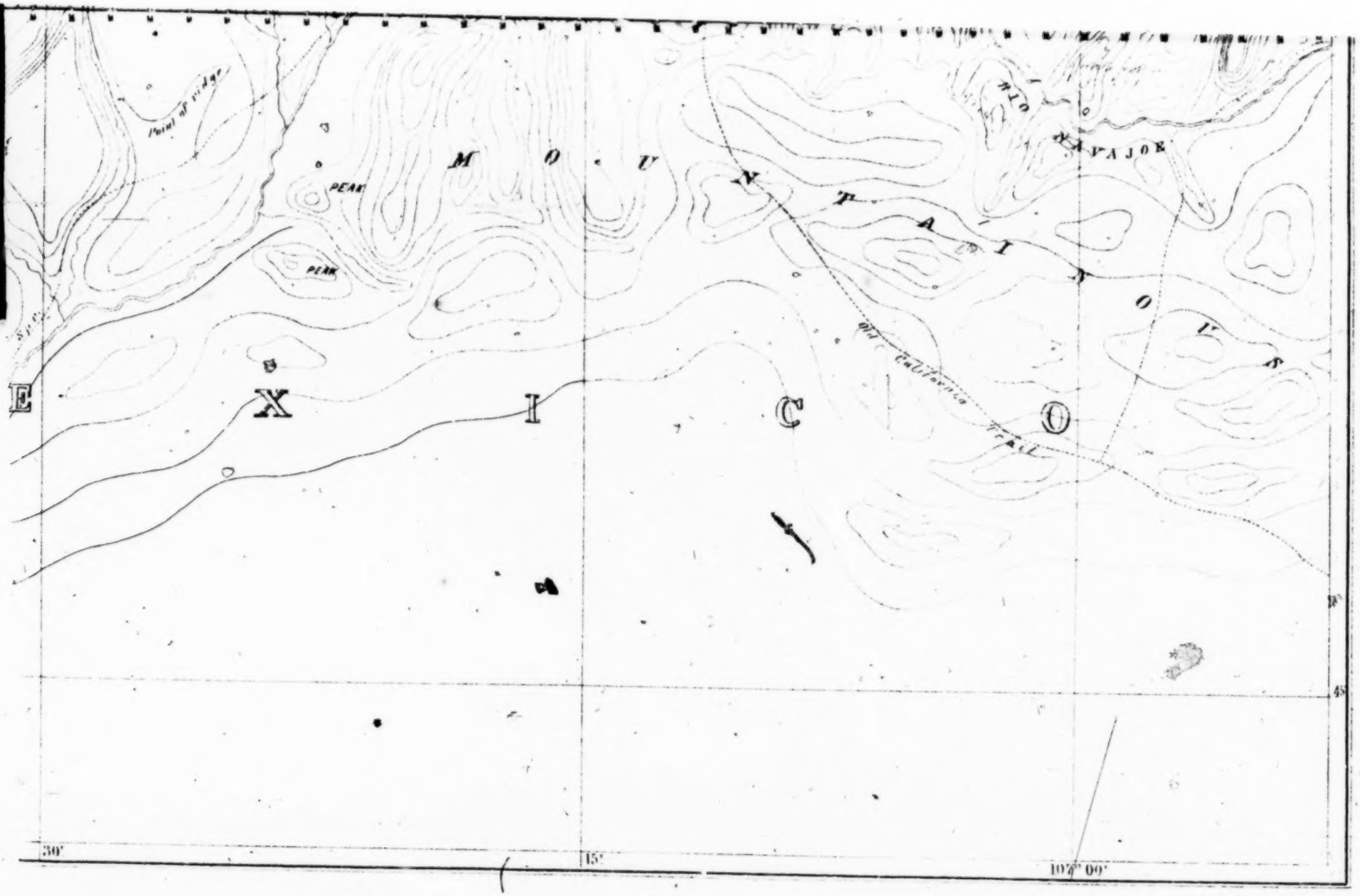
10 BOUNDARIES
Sheet 4

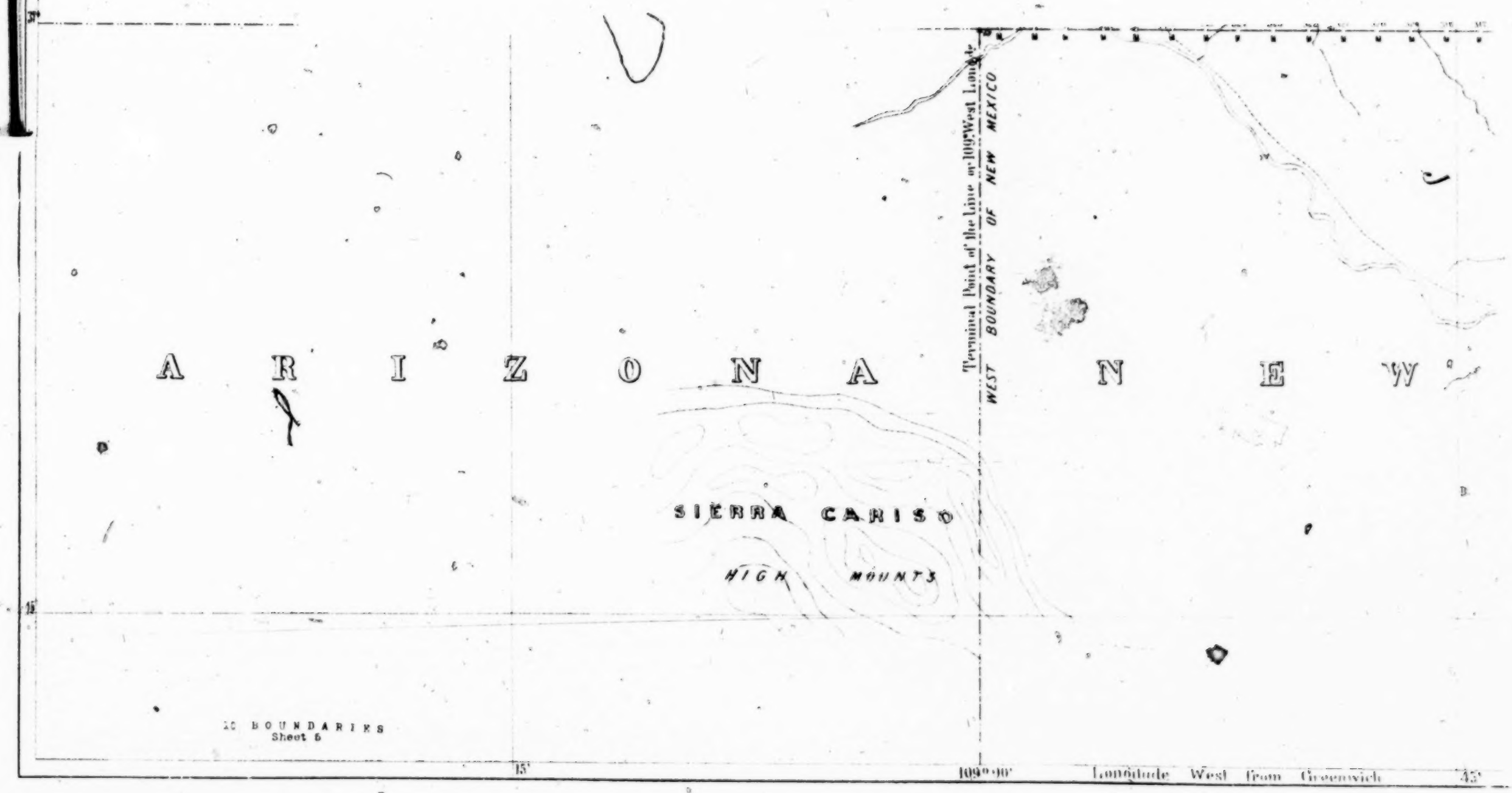
108° 00'

15'

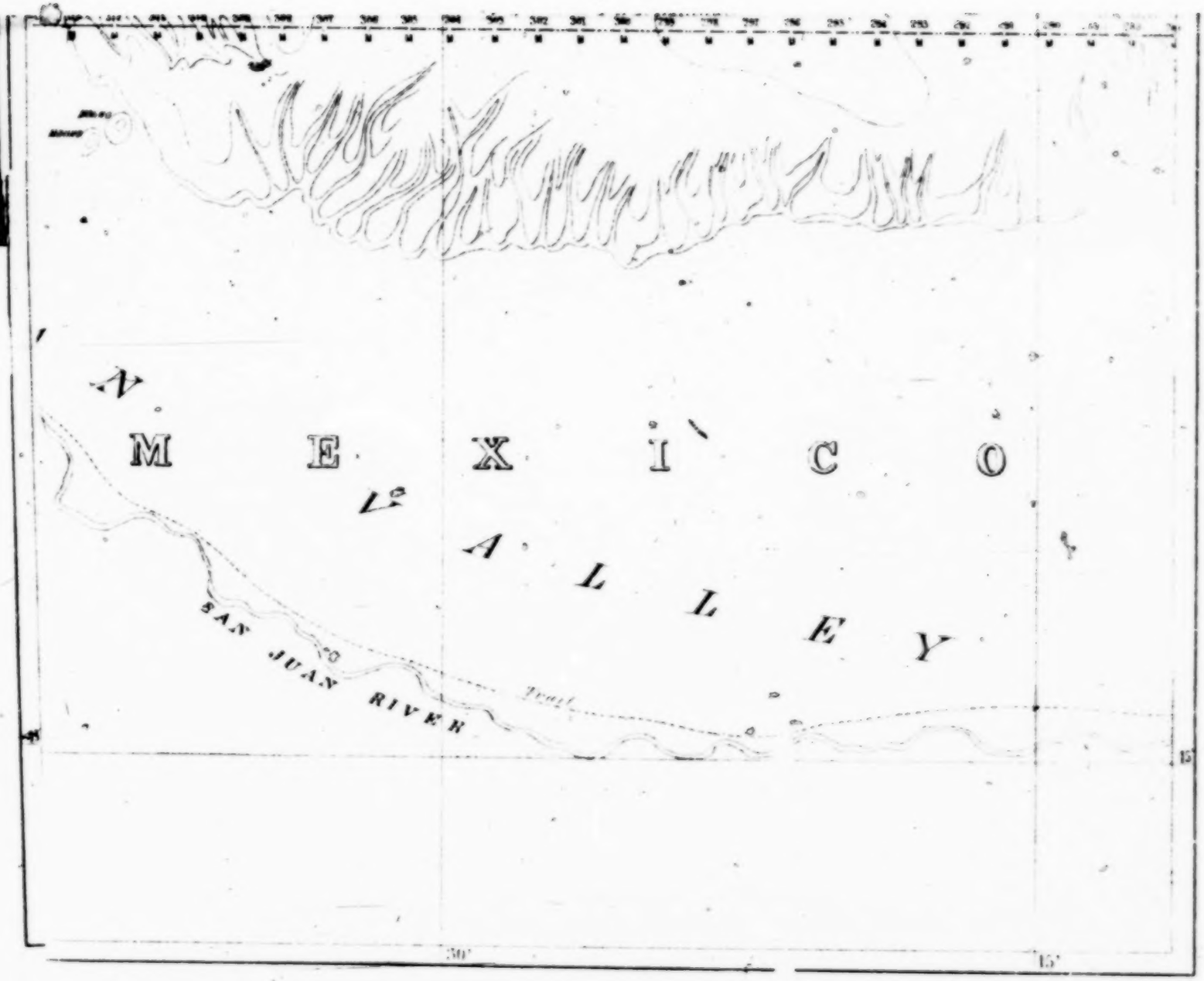
Longitude West from Greenwich

30'


Point of ridge
PEAK
PEAK
M O U N T A I N S
NAVAJOE
Old California TRAIL
E X I C O
36°
15'
107° 00'



A R I Z O N A
N E W
Terminal Point of the Line on 109° West Longitude
WEST BOUNDARY OF NEW MEXICO
SIERRA CARISO
HIGH MOUNTS
10 BOUNDARIES
Sheet 6
15'
109°00'
Longitude West from Greenwich
45'


N
M E X I C O
V
A L L E Y
SAN JUAN RIVER
Trail
30'
15'
15'

Private Land	416.44
Public Land	6031.03
Total number of Acres.	6447.47

Surveys Designated	By Whom Surveyed	No.	Date of Contract	Amount Ms. Chs. Lks.	When Surveyed	
Subdivisions	Arthur D. Ridder and Jay P. Hester	868	April 20, 1908	15 - 46 - 08	Jan. 1-2, 1909	Resurvey.
Connections	" " " "	"	" " "	3 - 21 - 69	" " "	
West Boundary	" " " "	"	" " "		Dec. 22, 1908	"
6th Aux. Corr. Line S.	" " " "	"	" " "		" " "	"
Major South Bdy Coll.	" " " "	"	" " "		" 19 "	9p.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan. 20, 1922.
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

Assistant Commissioner

The above Map of Resurvey Fractional Township No. 35 South, of Range No. 41 West of the 6th Principal Meridian in Colorado, is strictly conformable to the field notes of the resurvey thereof on file in this Office, which have been examined and approved.

U.S. SURVEYOR GENERAL'S OFFICE.
Denver, Colorado. November 6th 1909.

A. G. Lewis
Surv. Gen'l.

Resurvey Fractional Township No. 35 South Range No. 42 West of the 6th Principal Meridian

Latitude 37°2'N
Longitude 102°6.4'W
Mag Dec 12°20'E

6TH Auxiliary Correction Line South East

T.34S. R.42W.

Sec 36 T.34S. R.43W

Sec 31

Sec 32

TRACT No. 71

TRACT No. 73

TRACT No. 38

TRACT No. 37

TRACT No. 39

TRACT No. 7

TRACT No. 50

TRACT No. 51

TRACT No. 75

Miles Ranch

Windmill

80.00

RIVER

CIMARRON

SOUTH

SAND HILLS

SHIFTING

CARPENTER

SOUTH BOUNDARY COLORADO

Dirt Road

Sec 1 T.35S. R.43W

Sec 12 T.35S. R.43W

Sec 6 640.44

Sec 5 640.18

Sec 4 640

Sec 3 640

Sec 2 640

Sec 1 640

Sec 7 641.28

Sec 8 640

Sec 9 639.96

Sec 10 640.03

Sec 11 640

Sec 12 640

Sec 18 442.66

Sec 17 445.84

Sec 16 443.42

Sec 15 454.33

Sec 14 459.56

Sec 13 463.72

N89°58'E 80.11

N89°59'W

N89°54'W

West

West

N89°59'W

80.08

80.00

80.04

79.98

79.94

N89°58'E

N89°58'W

N89°55'W

S89°55'W

West

N89°57'W.

80.21

80.14

79.96

80.02

79.94

80.00

S89°58'W 33.69

S89°58'W 33.89

N89°58'E 46.10

S89°58'W 33.87

S89°58'W 33.76

S89°58'W 33.60

S89°58'W 33.49

N89°37'W 49.22

30.25 30.18 30.47 30.8 31.10 31.34 31.58 31.82 32.04 32.26 34.14 34.46 34.75 35.03 35.32 35.58 35.81 36.05 36.28 38.20

TRACT No.

37 38 39 50 51 71 72 73 74 75

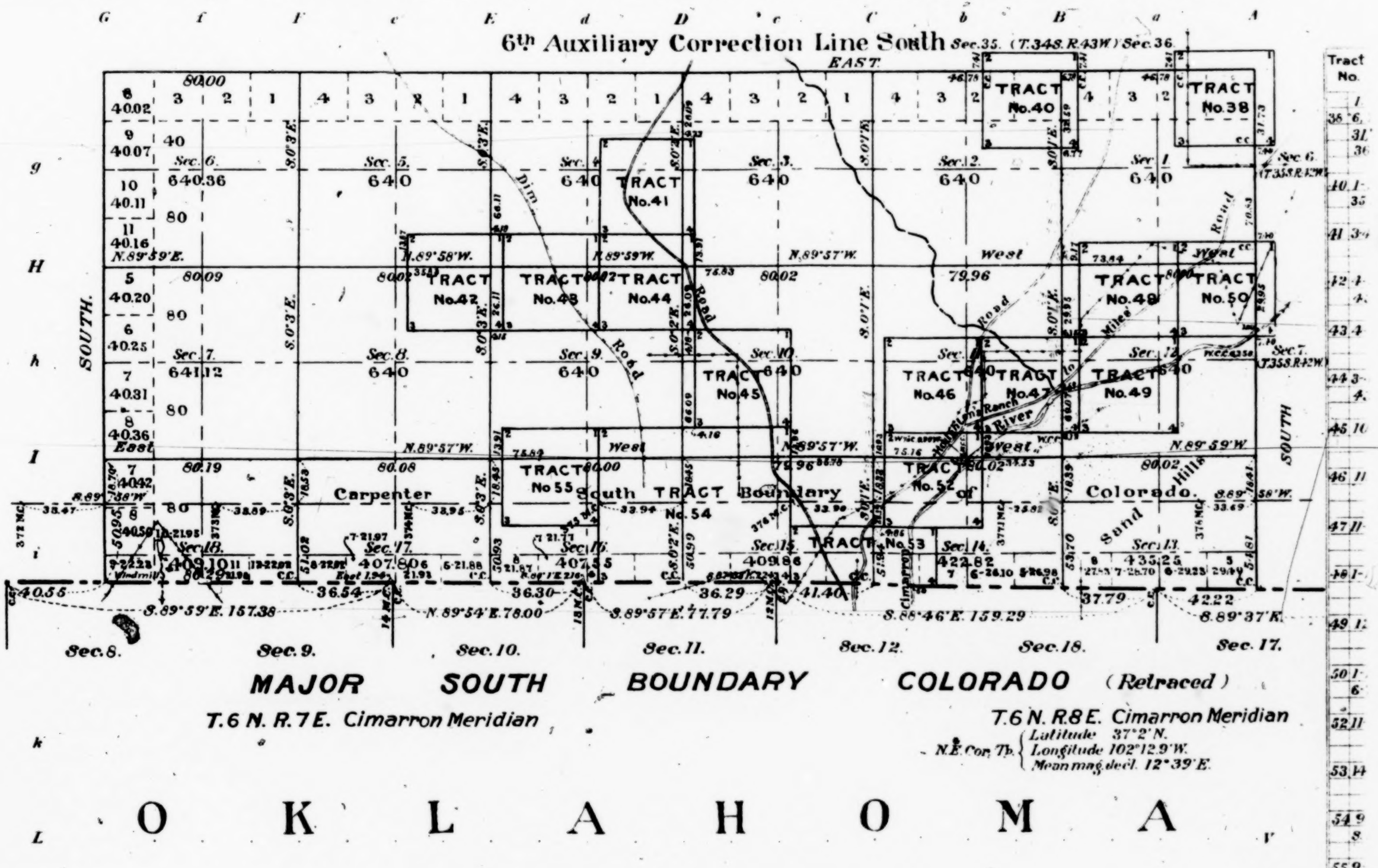
...ian, Colorado.

See Supplemental Diagram

Tract No	Sections	Entry and Entryman	Original Description
37	6, T. 35 S. R. 42 W 31, T. 34 S. R. 42 W	Pre. E William I. Genti	Lots 1 and 2, S½ NE¼ Sec. 1, T. 35 S. R. 43 W.
38	36, T. 34 S. R. 43 W 31, T. 34 S. R. 42 W 1, T. 35 S. R. 43 W 6, T. 35 S. R. 42 W	Pre. E. George M. Brown	Lots 3 and 4, S½ NW¼ Sec. 1, T. 35 S. R. 43 W.
39	6, T. 35 S. R. 42	F. Hd. Samuel L. Florey	SE¼ Sec. 1, T. 35 S. R. 43 W.
50	6, 7 T. 35 S. R. 42 W 1, 12, T. 35 S. R. 43 W	Pre. E. Jefferson D. Walden	NW¼ Sec. 12, T. 35 S. R. 43 W.
51	6, 7, T. 35 S. R. 42 W	Final T. C. Samuel L. Florey	NE¼ Sec. 12, T. 35 S. R. 43 W.
71	5, T. 35 S. R. 42 W 32, T. 34 S. R. 42 W.	Pre. E. Homer V. Guernsey	W½ SE¼ Sec. 31, T. 34 S. R. 42 W., Lots 1 and 2 Sec. 6, T. 35 S. R. 42 W.
72	5, T. 35 S. R. 42 W	Com. to C. E. Frank W. Trask	S½ NE¼, W½ SE¼ Sec. 6, T. 35 S. R. 42 W.
73	5, 6, T. 35 S. R. 42 W. 31, 32, T. 34 S. R. 42 W.	Corn. to C. E. Harry P. Florey	Lots 3, 4 and 5, S. E¼ NW¼ Sec. 6, T. 35 S. R. 42 W.
74	5, 6, T. 35 S. R. 42 W.	Pre. E. Harry P. Florey	Lots 6, 7, E½ S. W¼ Sec. 6, T. 35 S. R. 42 W.
75	9, 10, 15, 16 T. 35 S., R. 42 W.		School Section 16, T. 35 S. R. 42 W.

Resurvey

Fractional Township No. 35 South, Range No. 43 West of the 6th Principal Meridian, Colorado.



MAJOR SOUTH BOUNDARY COLORADO (Retraced)

T. 6 N. R. 7 E. Cimarron Meridian

T. 6 N. R. 8 E. Cimarron Meridian

N. E. Cor. Tp. { Latitude 37° 2' N. / Longitude 102° 12.9' W. / Mean mag. decl. 12° 39' E.

OKLAHOMA

See Supplemental Diagram

Tract No.	Sections	Entry and Entryman	Original Description
	1. T.35 S. R. 43 W.		
38	6, T.35 S. R. 42 W.	Pre E.	Lots 3-4 and S½ NW¼
	31, T.34 S. R. 42 W.	George N. Brown	Sec 1, T.35 S. R. 43 W.
	36, T.34 S. R. 43 W.		
40	1-2, T.35 S. R. 43 W.	Pre E.	Lots 3-4 and S½ NW¼
	35-36, T.34 S. R. 43 W.	Frank Thexler	Sec 2, T.35 S. R. 43 W.
41	3-4, T.35 S. R. 43 W.	Pre E.	S.W. ¼ Sec. 4,
		Lucy A. Brown	T. 35 S. R. 43 W.
42	4-5-8-9, T.35 S. R. 43 W.	Pre E.	N.W. ¼ Sec. 8,
		William A. Warren	T. 35 S. R. 43 W.
43	4-9, T.35 S. R. 43 W.	Pre E.	N. E. ¼ Sec. 8,
		Theodore L. Johnson	T. 35 S. R. 43 W.
44	3-4-9-10, T.35 S. R. 43 W.	Pre E.	N.W. ¼ Sec. 9,
		James S. Barlon	T. 35 S. R. 43 W.
45	10, T.35 S. R. 43 W.	Pre E.	S. E. ¼ Sec. 9,
		Richard F. Brown	T. 35 S. R. 43 W.
46	11, T.35 S. R. 43 W.	Pre E.	S.E. ¼ Sec. 10,
		Charles Witherbee	T. 35 S. R. 43 W.
47	11-12, T.35 S. R. 43 W.	Pre E.	S.W. ¼ Sec. 11,
		William C. Fair	T. 35 S. R. 43 W.
48	1-12, T.35 S. R. 43 W.	Pre E.	N.E. ¼ Sec. 11
		Charles W. Finley	T. 35 S. R. 43 W.
49	12- T.35 S. R. 43 W.	Final Hd. C.E.	S.E. ¼ Sec. 11
		Julius Mattsen	T. 35 S. R. 43 W.
50	1-12, T.35 S. R. 43 W.	Pre E.	N.W. ¼ Sec. 12
	6-7, T.35 S. R. 42 W.	Jefferson D. Walden	T. 35 S. R. 43 W.
52	11-14, T.35 S. R. 43 W.	Pre E.	N.E. ¼ Sec. 15
		James Reed	T. 35 S. R. 43 W.
53	14-15, T.35 S. R. 43 W.	F. Hd. Ctf.	Lots 2-3-4 Sec. 15
		Frank C. Applegate	T. 35 S. R. 43 W.
54	9-10 15-16, T.35 S. R. 43 W.		School Section T. 36 S. R. 43 W.
55	9-16, T.35 S. R. 43 W.	Final T.C.	N.E. ¼ Sec. 17
		Alfred J. Harman	T. 35 S. R. 43 W.

Resurvey

Fractional Township No. 35 South, Range No. 44 West of the 6th Principal Meridian, Colorado.

6th Auxiliary Correction Line South

EAST

SOUTH

SOUTH

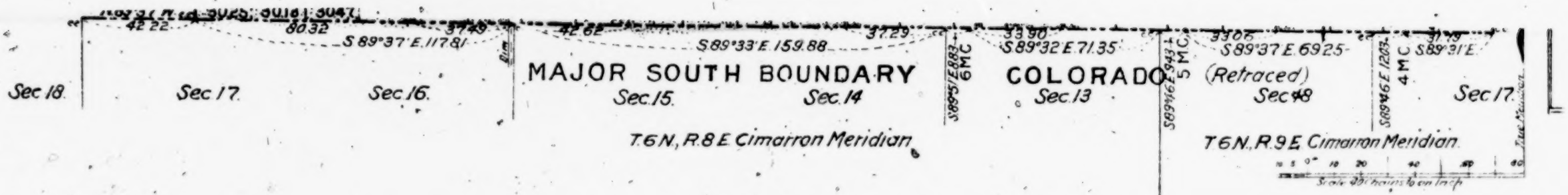
SOUTH

See Supplemental Diagram

TRACT Nº	Sections	Entry and Entryman	Original Description
37	11, T. 35 S., R 44 W.	H. Saml D. Shugart	S.E.¼ N.W.¼ S.W.¼ N.E.¼ N.W.¼ S.E.¼ N.E.¼ S.W.¼ Sec. 11 T. 35 S. R. 44 W.
38	8, 9, 16, 17, T. 35 S., R 44 W.		School Section 16. T. 35 S., R. 44 W.
39	7 and 18 T. 35 S., R 44 W.	Pre. E. Richard F. Cole	N.E.¼ Sec. 18, T. 35 S., R. 44 W.
40	7/18, T. 35 S. R 44 W. 12/13 T. 35 S., R 45 W.	Pre. E. Thomas H. Cole	N.W.¼ Sec. 18, T. 35 S., R. 44 W.

SOUTH

Tp { Latitude 37° 2' N.
Longitude 102° 19.4' W.
Mean mag. decl. 12° 30' E.



OKLAHOMA

Public Land 8871.55
Private Land 1525.87

Total number of Acres 10397.42

Surveys Designated	By Whom Surveyed	No	Date of Contract	Amount Mls.	Amount Chs.	Amount Lks.	When Surveyed	
E and W Township Lines	Arthur D Kidder and Jay P Hester	863	April 20 1908.				Nov 27, Dec 22, 1908	Resurvey.
6th Aux Corr Line South	" " " " " "	"	" " "				Dec 20-21, "	"
Major South Bdy Co'o.	" " " " " "	"	" " "				Nov 26, Dec 19, "	Retracement
Subdivisions	" " " " " "	"	" " "	25	43	20	Dec. 28-30, "	Resurvey
Connections	" " " " " "	"	" " "	5	32	45	" " "	

G.E.H. Comp
C.W.S. Orig.

The above Map of

Resurvey Fractional Township No 35 South of Range No 42 West of the 6th Principal Meridian, in Colorado, is strictly conformable to the field notes of the resurvey thereof on file in this office, which have been examined and approved.

Surveyor General's Office,
Denver, Colorado November 6th 1909.

W. G. Lewis
Surv. Genl.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan. 20, 1922
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

Assistant Commissioner.

720

O K L A H O M A

M

m

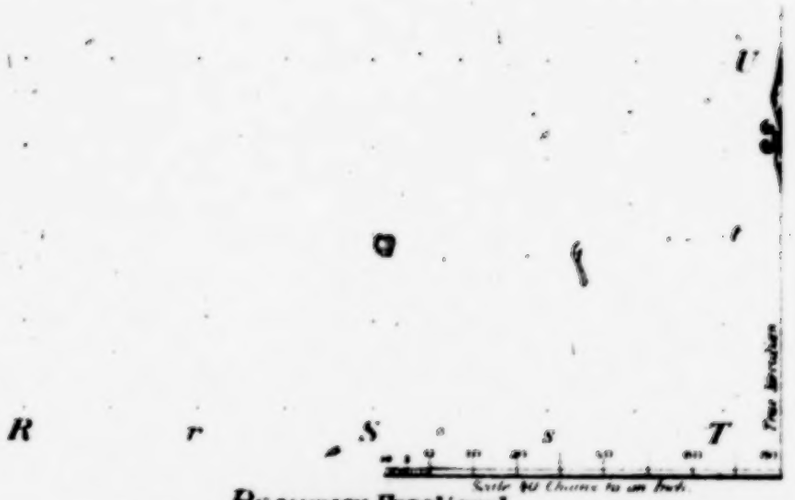
Public Land 7390.13
Private Land 2783.73

N n O o P p Q q R

Total number of Acres 10173.86

Surveys Designated	By Whom Surveyed	No	Date of Contract	Amount of Surveys M Ch. Lks.	When Surveyed	
East and West Township lines	Arthur D. Kidder and Jay P. Hester	863	April 20, 1908		Nov. 24-27, 1908	Resurvey
Subdivisions	" " " "	"	" " " "	25 - 18 - 96	Dec. 20-24, "	"
Connections	" " " "	"	" " " "	6 - 01 - 28	" " " "	"
6th Aux. Corr. Line S.	" " " "	"	" " " "		Nov. 26-27 "	"
Major South Bdy Okla.	" " " "	"	" " " "		" 23-26 "	Retracement

Whyte.



Resurvey Fractional

The above Map of Township No. 35 South of Range No. 43 West of the 6th Principal Meridian in Colorado, is strictly conformable to the field notes of the survey thereof on file in this Office, which have been examined and approved.

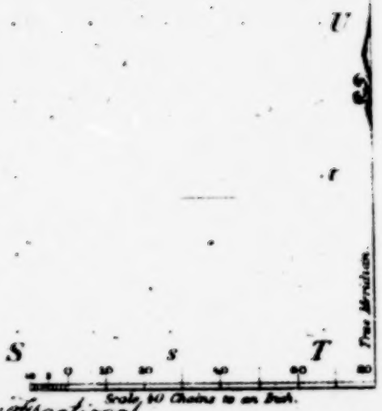
Surveyor Generals Office.
Denver Colo. November 8th 1909

W. J. Lewis
Sur. Gen.l

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan. 20, 1922.
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

Assistant Commissioner.

721



Public Land 9149.11 A.
Private Land 945.26 A.
} Total number of Acres 10094.37

Survey Designated	By Whom Surveyed	Date of Contract No.	Amount of Survey M. Ch.s D.s	When Surveyed	
E. Township line	Arthur D. Hidder and Jay. P. Hester	863 April 20, 1908		November 24, 1908.	Resurvey
Subdivisions	" " " "	" " " "	25 - 11 - 65	December 1-5, "	"
Connections	" " " "	" " " "	6 - 11 - 55	" " " "	"
6th Aux. Cor. line South	" " " "	" " " "		November 24, "	"
5th Aux. Guide Mer. West	" " " "	" " " "		" 17, "	"
Major South Bdy. Colo	" " " "	" " " "		" 16-23 "	Retracement

Resurvey Fractional

The above Map of Township No. 35 South of Range No. 44 W. 6th Principal Meridian, in Colorado, is strictly conformable to the notes of the survey thereof on file in this Office, which have been examined and approved.

Surveyor Generals Office
Denver, Colo. November 5th 1909

W. E. Lewis
Sur. Gen.

Resurvey Fractional

The above Map of Township No. 35 South of Range No. 44 West of the 6th Principal Meridian, in Colorado, is strictly conformable to the field notes of the Resurvey thereof on file in this Office, which have been examined and approved.

Surveyor General's Office.
Denver, Colo. November 5th 1909

W. G. Lewis
Sur. Genl.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan. 20, 1922.
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

George Wickham
Assistant Chamberlain

722.

Mr. Clancy: I object to the question as not being sufficiently definite or specific on the question of surveys, the subject in question.

Mr. Keyes: Answer the question?

Mr. Kidder: The rule of the general land office as understood by me is that of accuracy and precision in the establishment of a line, together with permanency and integrity of the line as monumented, after said line has been duly approved by the proper authorities.

Mr. Keyes: Is it not true that there is not probably any precise or accurate parallel of latitude established as the boundary as between any state?

Mr. Kidder: I do not know.

Mr. Keyes: If the Carpenter survey were substituted for the Darling survey would it not affect the boundary between Oklahoma and Kansas, as well as that between Colorado and New Mexico?

Mr. Kidder: I believe the same questions of law are involved in both cases.

Mr. Keyes: You may ask Mr. Ramsey.

Further cross-examination conducted by Wm. R. Ramsey, Assistant Attorney General and also of counsel for defendant, the State of Colorado:

Q. Mr. Kidder is it not true, referring to the Carpenter line determined by astronomical observations, as you have stated, that such stations could not be connected by a straight line exactly east and west, owing to deviations in the mass of the earth's surface;—is that not true?

A. It is.

[fol.757] Q. Mr. Kidder, is it not true that a true parallel of latitude must be a line due east and west at all points?

A. It is, but it must be remembered that separate observations along the line would not show the same direction of true east and west, because any one observation would be affected by inequality of the mass of the earth's surface at that point, and that will be noted in determining the direction of a line as well as in the observation for latitude.

Q. Well now then, Mr. Kidder, in stating what is necessary in order to constitute a true parallel of latitude, does the Carpenter line qualify in the respect.

A. The Carpenter line qualifies according to the specifications laid down by the general land office, but not according to the specifications laid down by the United States Coast and Geodetic Survey.

Q. Now explain in what way, and to what extent, that the Carpenter line failed to qualify with the requirements of establishing lines by the United States Coast and Geodetic Survey,—in what way, and to what extent?

A. The Carpenter line, the thirty-seventh parallel of latitude, fails to qualify with the specifications of the United States Coast and Geodetic Survey, in that the line is not at every point, a due east and west line, and the latitude of the line is not a true marking of the thirty-seventh parallel of latitude, according to the average

determination of the eight astronomical stations combined into one result. The Carpenter line connects the several astronomical stations, each one correct in itself, but as explained, the line does not have a uniform east and west direction.

Q. Could you state what probably would be the variation between the Carpenter line and the true line established by geodetic methods?

A. The average difference would be zero. Part of the Carpenter [fol. 758] line may be considered slightly north of the true geodetic thirty-seventh parallel of latitude; part of the Carpenter line may be considered to be a slight distance south of the true thirty-seventh parallel of latitude, as determined by geodetic methods. There would be as much correction to the south probably as to the north, so that taken on an average, the adjustment to the south would equal the adjustment to the north. In my opinion the maximum adjustment at any one point, could not possibly exceed six chains, or approximately four hundred feet.

Q. As a matter of fact the line as established by Carpenter, in some places would be too far north, and in other places would be too far south of a true parallel line?

A. Yes, sir.

Q. Has the Carpenter survey ever been recognized or accepted by any competent authority of your own knowledge as the southern boundary line?

A. That would be a matter of record if there is any such acceptance.

Mr. Clancy: That calls for Mr. Kidder's opinion as to what is competent authority; that is a matter he is not qualified as an expert to testify concerning.

Mr. Kidder: Now continuing with my answer: the last was what?

Examiner Luther: "That would be a matter of record if there is any such acceptance."

Mr. Kidder: I do not know.

Mr. Ramsey: Now Mr. Kidder refreshing your recollection again, is it not true, that after the Carpenter survey was reported to the Commissioner of the General Land Office of the United States, that you were sent to go over the field to correct certain errors, that were pointed out in instructions given to Mr. Carpenter himself?

Mr. Kidder: No sir.

[fol. 759] Mr. Ramsey: Is it not a fact that Carpenter failed to follow instructions given him by the General Land Office of the United States in making this survey, in at least some particulars?

Mr. Kidder: Not that I know of.

Examiner Luther: If agreeable to counsel we will take an adjournment until 9:30 a. m., Tuesday, 18th July, 1922, and inasmuch as Mr. Kidder is required for further testimony he will appear and continue the same at that hour.

Mr. Kidder: Yes sir.

(4 20 p. m.)

Second Day, Tuesday, 18th July, A. D., 1922, proofs continued

Forenoon Session

(9:30 a. m.)

Examiner Luther: Are you ready to proceed, gentlemen?

Mr. Clancy: While I think of it I wish to have the examiner make notation that the State of New Mexico desires two complete copies of the evidence taken at Denver. Send bill to the State of New Mexico at Santa Fe.

Mr. Keyes: We will also want two carbon copies.

Mr. Ramsey: I will call Mr. Kidder again.

Mr. ARTHUR D. KIDDER resumed the stand and further testified.

Mr. Ramsey (continuing): Are you the same Arthur D. Kidder who was mentioned by the Commissioner of the General Land Office in a letter dated September 9, 1903, to Mr. H. B. Carpenter?

Mr. Kidder: Yes sir.

Q. And in that letter is it not stated that you were instructed to go to astronomical station No. 6 and by astronomical observation determine its location as to latitude?

A. Yes sir.

Q. And in that communication did not the Commissioner state [fol. 760] to Carpenter "that it is surmised you placed this monument where it is thru misunderstanding of your instructions?"

A. If that is stated.

Mr. Clancy: It is of record anyhow.

Mr. Ramsey: It is stated here, "it is surmised you placed this monument where it is thru misunderstanding of your instructions." You were instructed, were you not, to go to the field as examiner of surveys and look over the work done by Carpenter between the fifth and sixth astronomical stations,—were you not?

Mr. Kidder: Yes sir, that is correct.

Mr. Ramsey: Were you to examine or look over any other part of the Carpenter line?

Mr. Kidder: I was required to test the latitude of the southeast corner of Colorado.

Q. Anyhow this work that was done by Carpenter was erroneous to the extent that the Commissioner of the General Land Office sent you to examine his work,—is that correct?

A. No sir, that is not correct.

Q. Is it not correct that the Carpenter survey was erroneous in several particulars?

A. No sir; the Carpenter survey was executed strictly in accordance with the special instructions issued to him, and as understood by him.

Q. At the time the Carpenter survey was made, was it the south boundary of Colorado?

A. I do not understand your question.

Q. At the time the Carpenter survey was made, where was the south boundary of Colorado?

A. I understand your question to be one which calls for legal interpretation or inference which I am unable to state.

Q. As a matter of fact you know that there had been an original boundary line established, do you not?

A. I knew about the Darling line, yes sir.

[fol. 761] Q. Was that the line at the time Carpenter made his survey? At that time what was the boundary, the southern boundary line?

Mr. Clancy: That calls for a conclusion that the witness is not qualified to answer.

Mr. Ramsey: That is a question of fact.

Mr. Clancy: The fact is that the boundary was on the thirty-seventh parallel. I object to the question as one not a proper one for this witness to answer. I think the witness can take care of himself about that.

Mr. Ramsey: There is no doubt of that. What is the answer?

Mr. Kidder: What is the question, again, please?

Mr. Ramsey: Repeat the question Mr. Examiner.

Examiner Luther: The last question by Mr. Ramsey was: "What was the line at the time Carpenter made his survey? At that time what was the boundary, the boundary line?" And Mr. Ramsey further added: "What is the answer?"

Mr. Kidder: I can only state that for administrative purposes, as far as I know, the Department had recognized the Darling survey prior to the Carpenter survey.

Mr. Ramsey: Recognized it as the southern boundary of Colorado?

Mr. Kidder: Yes sir.

Q. Is it not a fact that Mr. Carpenter's instructions and his contract with the United States were, that he was to resurvey, remark, and reestablish the boundary between Colorado, and the territories of New Mexico and Oklahoma?

A. Yes sir.

Q. Did Carpenter resurvey, remark, and reestablish the Darling line?

A. No sir.

Q. Is it not true that what Carpenter did, was, instead of retracing, restoring, and remarking of the originally established line, as already fixed by Darling, to make a new and independent line?

A. Yes sir.

[fol. 762] Q. Then he did not follow his instructions, did he?

A. Yes sir. The special instructions set forth in detail the manner in which Carpenter was required to resurvey, reestablish and remark the boundary line between Colorado and the territories of New Mexico and Oklahoma.

Q. Is it not the duty of a surveyor who has been instructed to resurvey, remark, restore, and reestablish a line, to follow the original survey, or line, wherever it can be found and traced?

A. That depends on the nature of the resurvey. There are two types of resurvey: I will answer in response to that question, that generally where rights have attached to an old boundary, that the surveyor will be instructed to restore the line in its original position. However, where no rights have attached to the former boundary, or where the former line has not in every way been approved and accepted by competent authority, and it is certain thru examination that the old line is grossly defective, and that it was not located in the beginning where intended, or where there is uncertainty in regard to the identification of the old line, there are many instances on record where it will be found that the surveyor is instructed to destroy the old line, and run a new line in correct position.

Mr. Ramsey: I move to strike out all of that part of the answer which does not answer my question.

Mr. Clancy: That motion whenever it is brought up for action will be resisted by the plaintiff on the grounds that all of the answer is quite pertinent to the question.

Mr. Ramsey: According to the practice in surveying, are there not two methods of making surveys, one known as the dependent method, and the other known as the independent method?

Mr. Kidder: What is that question again?

Mr. Ramsey: Is it not the practice in surveying to use two methods: one known as the dependent method, and the other as the independent method: That is my question?

[fol. 763] Mr. Kidder: The question is one which cannot be answered by an engineer for the reason that the question apparently refers to the subject of surveying in general, but bears particularly upon the subject of resurvey.

Mr. Ramsey: I will make matters clearer by asking another question: I mean by dependent survey, by dependent method, where a survey has previously been made, and there is a resurvey of the line to be made? That is what I mean in the question, by asking you regarding the dependent method?

Mr. Kidder: In response to your question I would like to read into the record the definition for dependent resurvey and the definition for independent resurvey. It would be clearer than any answer I can give.

Q. Is it impossible to answer my question?

A. Scarcely, as the question does not show a sufficiently clear grasp of the subject to make it possible to answer it.

Q. Then where a survey has previously been made, and there is to be a resurvey of the line, would that fall under the head of a dependent or independent method?

A. It depends on the existing facts.

Q. Under that particular state of facts would that be a dependent or an independent?

A. Carpenter's instructions called for an independent resurvey——

Q. What would that survey be——?

Mr. Clancy: Do not interrupt him. Let him first state what he has to say.

Mr. Ramsey: Point out in the instructions where it calls for an independent resurvey?

Mr. Kidder: I will have to read the whole of the instructions into the record.

Mr. Clancy: They are already in the record. That will not be necessary.

(Witness hunts for and finds instructions referred to but did not read them at this point).

[fol. 764] Mr. Kidder (continuing): In particular it is clear——

Mr. Clancy: Referring to the particular instructions there is also a copy of them in that book, but only refer to them by referring to the printed pages in the complaint.

Mr. Kidder: Mr. Examiner, will you pick up my answer again?

Examiner Luther: You had stated, "In particular it is clear——."

Mr. Kidder: In particular it is clear that paragraphs two, three, four, five, six, seven, eight, and nine specify an independent resurvey, and in the third from the last paragraph of the special instructions it reads, "all evidences of corners and monuments set by Darling on the south boundary line of Colorado will be carefully obliterated." That can mean nothing more or less than an independent resurvey.

Mr. Ramsey: Resurvey of what?

Mr. Kidder: Of the south boundary of Colorado.—May I qualify my answer?—Along——

Mr. Ramsey: That answers my question.

Mr. Kidder: I think I should complete my answer.

Mr. Clancy: Complete your answer Mr. Kidder.

Mr. Kidder: —Along the thirty-seventh parallel north latitude.

Mr. Ramsey: Have you any other explanation to make of the meaning of a dependent survey?

Mr. Kidder: Yes sir. To make the subject clear, the process known as dependent resurvey is one used for the identification and the remarking of an original survey, where rights have attached to the original line, and where there is sufficient evidence of the monuments to serve as a controlling basis for the remarking of the original survey.

[fol. 765] Q. Now referring to the independent method of survey, as I understand it then, that is a method understood to be made independent of any other survey?

A. Repeat that?

Q. Now referring to the independent method, that is a method, as I understand it of making a survey independent of any other survey?

A. The words "dependent" and "independent" are employed by the general land office only in reference to resurveys. The terms are never applied in specifications for original surveys.

Q. Is it not true that an independent survey can only be made when there is no tracing of a line previously surveyed?

A. I do not understand that question.

Q. Then please state precisely what an independent survey is?

A. The manual of surveying instructions concerning the surveys of the public lands of the United States makes no reference whatever to dependent or independent surveys. It does, however, make specific reference to dependent and independent resurveys. Your questions are confusing as between original surveys and resurveys, and are not understood.

Q. You have made it clear that at the time the Carpenter survey was made that there had been a previous survey made by Darling?

A. Yes sir.

Q. What I am trying to bring out, was that Carpenter survey then a dependent or independent resurvey?

A. The Carpenter survey,——

Q. "Dependent" or "independent?"

A. —The Carpenter survey was an independent resurvey.

Q. In making an independent resurvey was that not contrary to the usual rule or custom?

A. No sir. It may be inferred from the special instructions dated July 7, 1902, issued to Howard B. Carpenter, United States Surveyor, that it was the intention of the department to cause an independent resurvey, and it may be inferred that the department was in possession of all the facts upon which the department could de- [fol. 766] termine whether the resurvey to be executed by Carpenter should properly be of the "dependent" or "independent" type of resurvey.

Mr. Keyes: I move to strike the answer as not responsive to the question.

Mr. Ramsey: You reach your conclusion that the instructions given by the commissioner of the general land office to Mr. Carpenter entirely were based upon the language used in the instructions and not from any other knowledge you have in regard to the matter:—Is that correct? In other words, is that your interpretation of the instruction?

Mr. Kidder: I have based my answers to your questions both upon the specific language of the special instructions issued to Carpenter and my general knowledge of the specifications of the general land office for both types of resurvey, dependent and independent. The specifications for the two classes of resurvey are entirely different, and there should be no confusion between the two types of resurvey. In some cases the general land office finds it necessary to prescribe an independent——

Mr. Ramsey (interposing): Are you making a voluntary statement to me, or are you answering my questions? I want you——

Mr. Clancy (interposing): I want you to—not interrupt the witness——

Mr. Ramsey: Are you?

Mr. Clancy: You should not interrupt the witness.

Mr. Ramsey: We are making our objections, which we have a right to do. We object to these volunteer statements——

Mr. Clancy (interposing): You are continually breaking in on him while right in the middle of a sentence.

Mr. Ramsey: We have a right to make our objections.

[fol. 767] Mr. Kidder: What was the last?

Examiner Luther: —"an independent."

Mr. Kidder: —"type of resurvey." Add that. In other cases a dependent type of resurvey is called for. It all depends upon the known facts with reference to a particular original survey.

Mr. Ramsey: Is it not unusual and is it not considered unprofessional for a surveyor to obliterate or destroy the corners and monuments that have been established by a previous survey?

Mr. Kidder: Not when the previous survey is unsatisfactory and no rights have been attached or established to the original survey.

Q. Is it not unusual, especially where the previous survey has been made by a competent United States surveyor and astronomer, to direct that his corners and monuments shall be obliterated and destroyed?

A. I think so, as a general rule.

Q. Now then, if I understand you correctly, and I want to so understand you, you take the position now that the Carpenter resurvey and line established by him was an independent survey of the old original line established by Darling? Is that correct?

A. It was an independent resurvey of the thirty-seventh parallel of north latitude, regardless of monuments established by Darling.

Q. In other words a new fixation?

A. Yes sir.

Q. Of the line established by Darling?

A. No sir.

Q. Was it then a new fixation of the thirty-seventh parallel as fixed by Darling?

A. No sir.

Q. What was it?

A. It was a resurvey of the thirty-seventh parallel of north latitude.

[fol. 768] Q. That implies a previous survey had been made of the thirty-seventh parallel?

A. Yes sir.

Q. Who made it?

A. Darling.

Q. Then it is true that it was a new fixation of the thirty-seventh parallel as fixed by Darling, is it not?

A. No sir.

Q. Referring to the Carpenter survey and field notes I will ask you to examine the certificate on page 347 of the bill of complaint made by the flagmen, the chainmen, the transit men, the axmen and moundmen——

Mr. Clancy (interposing): It would be the same as in that big book, which is a part of the record anyway— —

Mr. Ramsey: I will shorten that a little bit. Instead of "made by the flagmen," etc., let it read "made by Carpenter's assistants."

Mr. Kidder: Now read the question please?

Examiner Luther: "Referring to the Carpenter survey and field notes I will ask you to examine the certificate on page 347 of the bill of complaint made by Carpenter's assistants?"

Mr. Kidder: It shows that the resurvey——

Mr. Clancy (interposing): You have only asked him to examine it so far.

Mr. Ramsey: That certificate on page 347 shows that the resurvey was of the south boundary of the state of Colorado?

Mr. Clancey: That is not the question.

Mr. Kidder: The question——?

(Question as amended by Mr. Ramsey repeated.)
(Witness examines record.)

Mr. Ramsey: Does it not show that the same was a resurvey of the south boundary line of the state of Colorado?

Mr. Kidder: Yes sir.

[fol. 769] Q. If the Carpenter line should be run at the present time, with present methods, and more modern instruments, would the Carpenter line be accurate or not?

A. The same results would be obtained under the same specifications.

Q. Is that your answer?

A. Yes sir.

Q. I hardly think that is an answer to my question Mr. Kidder.

A. Then please read the question, Mr. Examiner.

Examiner Luther: "If the Carpenter line should be run at the present time, with present methods, and more modern instruments, would the Carpenter line be accurate or not?"

Mr. Kidder: I have not intended to cut the answer short. Carpenter employed modern instruments and Carpenter employed modern methods; and the general land office has not changed its specifications for the determining of parallel of latitude. It should be understood that the same stations can be reoccupied with the same results, but change in the specifications for the determination of the parallel of latitude would necessarily result in slight changes in the position of the line.

Mr. Ramsey: Is that all?

Mr. Kidder: Yes sir.

Q. Then your answer is that if such survey should be made now in the way described, that the Carpenter survey would be as accurate now as it was then?

A. It would be the same now as it was then.

Q. That is what you say, as accurate now as then?

A. There are different degrees of accuracy, depending on specifications.

Q. Does not the establishment of a parallel of latitude by means of astronomical observations depend entirely on the point at which the observations are made?

A. Yes sir.

[fol. 770] Q. Is it possible for a parallel to be reproduced by a second surveyor or engineer unless the second engineer or surveyor, occupies for latitude determination, the same point where observations were made by the first surveyor or engineer?

A. The same stations should be reoccupied in order to obtain identical results.

Q. In effect, your answer is "yes," is it not?

A. Your question was a broad one, as I understood it. There are conditions under which the same stations would not necessarily have to be reoccupied, but having in mind the mountainous region of the territory upon the common boundary line between Colorado and New Mexico, it is proper to state that the same stations should be reoccupied when making latitude determination. Necessarily the record shows that astronomical stations numbers five and six were reoccupied with identical results. The record further shows that the thirty-seventh parallel of latitude was projected by Carpenter from station eight east to the boundary between Colorado and Kansas, and that subsequently the terminal point was occupied for latitude determination, with the result that the line was found to be precisely on the thirty-seventh parallel of latitude. This point was about twenty miles from station number eight.

Q. In that connection will you please explain what is meant by the commissioner of the general land office in his letter to Carpenter in which he states between the fifth and sixth astronomical stations "there seems to be such a deflection from the true east line as would indicate that one of these monuments was not upon the thirty-seventh parallel of latitude"?

A. This means that the commissioner of the general land office did not fully understand why the directions of the line between the [fol. 771] fifth and sixth astronomical stations was not more nearly a true west and east line, and that the commissioner desired to look into the facts before approving the survey.

Q. Did you make any change or find any errors in the Carpenter survey?

A. I made no changes in the Carpenter survey and I found no errors in the Carpenter survey.

Q. That answers my question.

A. The results were found to agree exactly with the facts as reported by Carpenter.

Q. Is it not true that astronomical observations for latitude are referred to a line called "the vertical" which is at right angles to the water surface?

A. Yes sir.

Q. Is not this water surface tilted toward any great mass, such as a large island, or mountain system?

A. Yes sir.

Q. Then a deflection from "the vertical" may result in variations of a mile or more as compared with direct measurements and a system of triangulation, may it not?

A. I know of no such large discrepancies.

Q. There may be considerable discrepancy, may there not?

A. Yes sir. That explains——

Q. And would that be in the Carpenter line——

Mr. Clancy: Let him complete his answers.

Mr. Kidder: That explains why the Carpenter line is not at every point a true east and west line.

Mr. Ramsey: That is just what I am trying to get at: in other words it is not an accurate parallel of latitude,—is that right?

Mr. Kidder: It is to this extent: there could be a more precise determination of the true thirty-seventh parallel of latitude.

Mr. Ramsey: Yes, sir. That's all.

Redirect examination by Frank W. Clancy, Counsel for the State of New Mexico:

[fol. 772] Q. What is in the notes of the Carpenter survey showing the directions of the line between astronomical stations five and six—between those astronomical monuments—upon which the commissioner must have based his statement in the letter which was read or quoted from to you by Mr. Ramsey? I will all to that Mr. Kidder this point: what was in the notes that caused the commissioner to say, there was such a deflection in the line as to indicate that one or both of this fifth and sixth astronomical monuments are not located on the parallel of latitude, thirty-seventh degree?

A. I have got the place here (referring to book of notes). In the Carpenter field notes of the two hundred and eighteenth mile of his survey he states after the distance of 18.97 chains, "Set temporary astronomical monument. The line from this point run thru to the 6th astronomical station, on the 275th mile, where the falling was found to be 18.36 chains north of the 37th parallel, as determined by astronomical observations on nights of October 28th, 29th, and 30th, 1902. This being outside of the limit of 3" of arc allowed by the Hon. Commissioner the line was adjusted by applying the correction of 24.7 links per mile to the south, to bring it within said limit."

Q. Your information is it was upon that in the notes that the commissioner based his statement as read to you by Mr. Ramsey?

A. Partly, and principally, but it is—I am also of the opinion that the general land office was in possession of a report from another examiner, who had retraced the line, or part of the line, between numbers five and six, and it is reasonable to presume that the commissioner's statement contained in the letter referred to was based partly upon the report of the field examiner.

[fol. 773] Q. Do you know who that examiner was?

A. Mr. Frank M. Johnson.

Q. In your opinion is or is not the Carpenter line as nearly and accurately a fixation and establishment of the thirty-seventh parallel as can be expected under the methods employed and as specified in the instructions as given to him and in accordance with those instructions?

A. Yes sir.

Q. I understand from your testimony, from the tenor of your statements, that absolute and unchangeable accuracy in the fixation of such a line is not within the limits of human possibility. I think that is perhaps pretty strongly stated. However, I think you have got the idea I desire to convey and you no doubt can express in much better terms than I did?

A. The fixation of the Carpenter thirty-seventh parallel of latitude was as accurate as was possible under the specifications which he had to follow, and these specifications were as practicable for the location of the line as could reasonably be prescribed within the limit of the funds available for the survey. Greater precision could be obtained only thru a change in the specifications which would require a large increase in expense. It should be understood that under the specifications of the United States Coast and Geodetic Survey, the thirty-seventh parallel of north latitude could be fixed with precision, but that any practical surveyor in following the line by ordinary field methods would not find the line to be true east and west at all points. It all depends upon what is meant by precision in latitude and by precision in direction. As far as I am aware there has been no parallel of latitude laid down on the earth's surface on the specifications prescribed by the United States Coast and Geodetic Survey, as such specifications are in the ordinary sense impracticable of carrying out in the field. Their specifications are used for mathe-[fol. 774] matical and scientific purposes only but not for practicable purposes and uses.

Q. If I understand you correctly in your mind you make a distinction between the result of a theoretical accuracy in the location of such a line and practical accuracy in such location?

A. I do. That is the point exactly.

Q. And in your opinion is the Carpenter line practically as accurate in fixing the thirty-seventh parallel on the earth's surface as can be expected by practicable ordinary methods of such work?

A. Yes sir.

Q. Then if I understand you correctly you reoccupied the fifth and sixth astronomical stations after Carpenter's work was done?

A. Yes sir.

Q. And you found them to be accurately located?

A. Yes sir. I may add that in redetermining these stations they were occupied at a time when I was able to use an independent series of stars from which I obtained identical results.

Q. I think that is all I want to ask you Mr. Kidder?

A. Is that all?

Recross-examination by V. E. Keyes, Attorney General and Counsel for Defendant, the State of Colorado:

Q. I understand from your testimony that the instructions received by Carpenter were such, that if he followed them, it was impossible for him to locate a true and precise parallel of latitude? Is that true?

A. Yes sir I think it is.

Q. The Carpenter line, then, is not a line that is due east and west at all points?

A. That is correct.

Q. As a matter of fact it is to some extent a zigzag line as it is made?

A. Yes sir.

Q. You think that the maximum deviation at any point from the true parallel of latitude would not extend more than four hundred feet, did I understand you to say?

[fol. 775] A. I said that is my opinion, but I would say probably less, rather than more.

Q. The instructions given to Carpenter do not include to any extent the so-called triangulation method?

A. No sir; the triangulation method was not mentioned.

Q. That is all.

Mr. Clancy: Do the notes of the Carpenter survey show the deviation from the true east and west line, where there is any such deviation?

Mr. Kidder: Yes sir

Mr. Clancy: Have you made such an examination of these notes as to be able to state at what point or points occur the greatest deviation from a true line? I do not imagine you have, but I think you may state if you can?

Mr. Kidder: I have never made a detailed examination of all the Carpenter field notes, but my understanding is, the greatest deviation occurs between stations five and six, astronomical station five being located near the summit of the Culebra mountains, and astronomical station number six being located fairly well below the foot of the range.

Mr. Clancy: I think that covers the ground.

Mr. Keyes: In the region of the thirty-seventh parallel of latitude at the one hundred and third and one hundred and ninth meridians, are there any considerable variations in the elevation and in the density of the earth's crust?

Mr. Kidder: Yes sir

Q. What can you say in general with reference to the differences of elevation?

A. The difference in elevation ranges from about four thousand feet to about twelve thousand feet above the sea level along the line, with lofty peaks of much higher elevation both north and south of the parallel.

[fol. 776] Q. Are those differences in elevation both frequent and extreme?

A. They are, yes sir.

Q. Is that the only reason for the deflection of the vertical?

A. Yes sir, that is one of the principal reasons.

Mr. Keyes: I think that is all.

Mr. Clancy: These eight astronomical stations located and occupied by Carpenter in his survey, were of varying and different altitudes were they not? All of them?

Mr. Kidder: Yes sir, they were.

Q. Would that fact tend to accuracy in the line formed upon a combination of all his stations, and were there any possibility of error anywhere, it would be corrected in another place?

A. Yes sir, the practical effect is the general average.

Mr. Ramsey: Can you state Mr. Kidder the variance in distance between the Carpenter line and the originally established Darling line?

Mr. Kidder: No sir, not without an examination of the records.

Mr. Ramsey: That is all.

Mr. Clancy: I think we may release Mr. Kidder from his servitude so that he can go this afternoon.

Mr. Kidder: I hope to get away today.

Examiner Luther: Witness is excused. In case you are detained in your work you will be available if there may be some more questions by counsel on either side?

Mr. Kidder: Yes.

(Witness excused at 11:35 a. m., second day, 18 July, 1922.)

Examiner Luther: We will take a short recess.

After Recess

[fol. 777] (After a recess of five minutes proceedings resumed.)

Mr. Clancy: I will call and have duly sworn Mr. Frank M. Johnson.

FRANK M. JOHNSON, called as a witness on behalf of the plaintiff, the state of New Mexico, having been first duly sworn according to law, to testify the truth, the whole truth, and nothing but the truth, in the cause now pending, upon his oath testified in evidence as follows, viz:

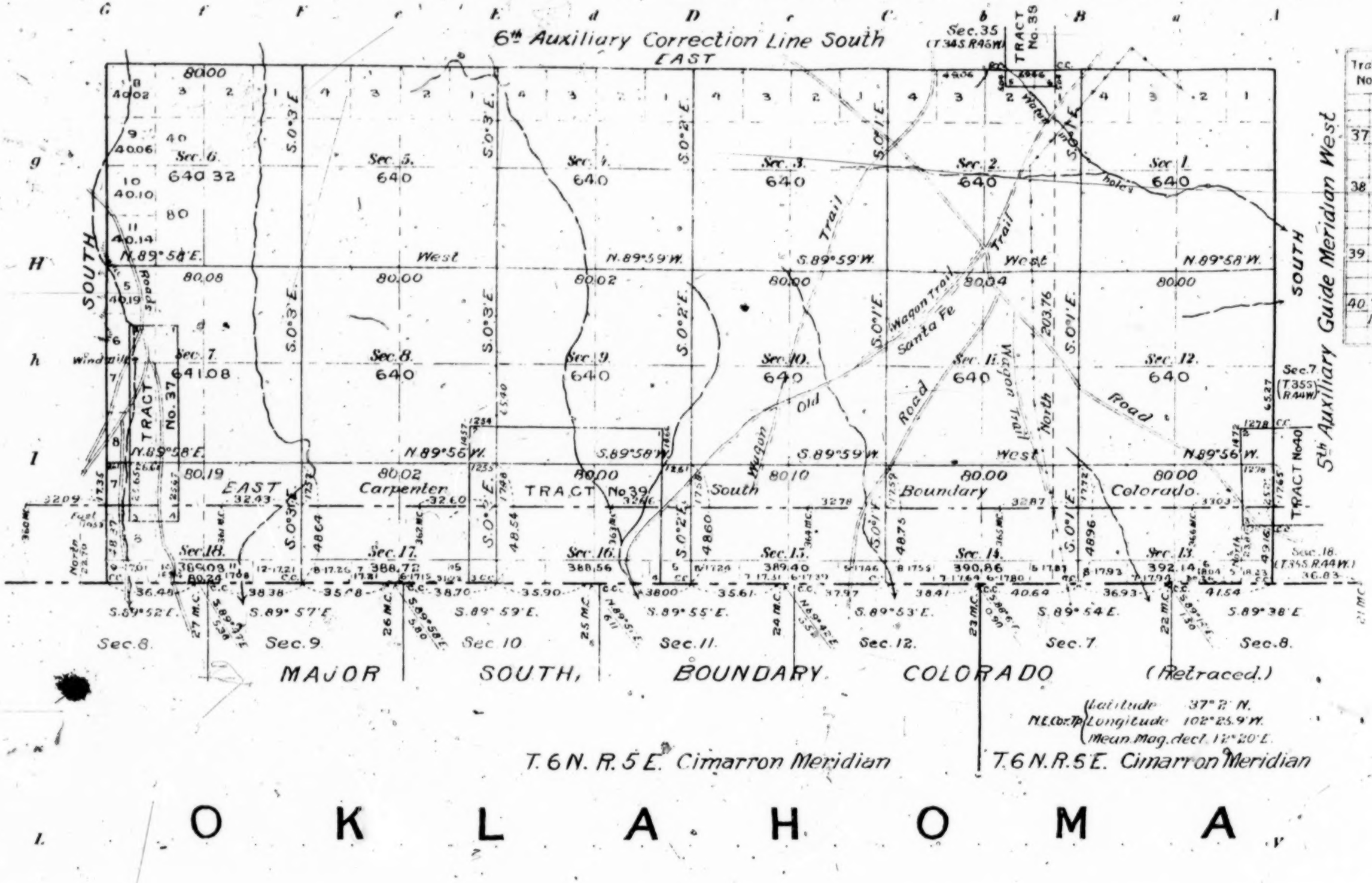
Direct examination by Frank W. Clancy, Counsel for the State of New Mexico:

Q. What is your name, occupation and official position?

A. Frank M. Johnson, civil engineer, and am United States Supervisor of Surveys.

Resurvey

Fractional Township No. 35 South, Range No. 45 West of the 6th Principal Meridian in Colorado.



O K L A H O M A

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See Supplemental Diagram

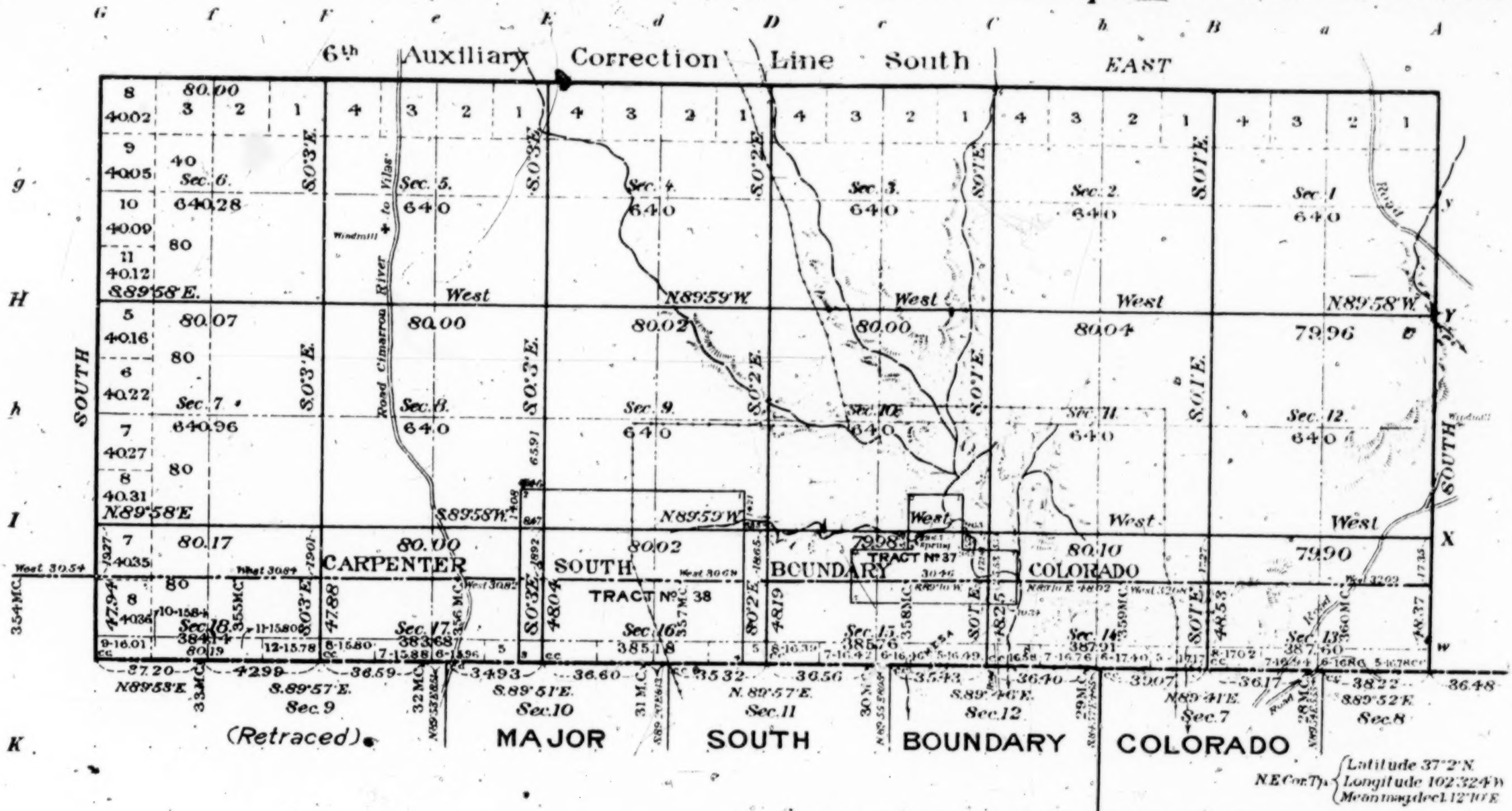
Tract No.	Sections	Entry and Entryman	Original Description
		Com C.E	E.½S.W.¼ Sec.7, and E
37	7-18, T.35S.R45W.	Teodocia Cordaba	½N.W.¼ Sec.18, T.35S.
			R.45W.
38	2, T.35S.R.45W.	Hd.	S.½S.E.¼ and S.E.¼S.W.
	35, T.34S.R.45W.	Charles P. Green	¼ Sec.35, T.34S.R.45W.
			and Lot 1 Sec.2, T.35S.R45W.
39	8-9, 16-17.		School Section 16,
	T.35S.R.45W.		T.35S.R.45W.
40	7-18, T.35S.R.44W.	Pre E.	N.W.¼ Sec.18, T.
	12-13, T.35S.R45W.	Thomas H. Cole	35 S.R.44W.

3rd Auxiliary Guide Meridian West

18.
44 W.)
83
21 mc

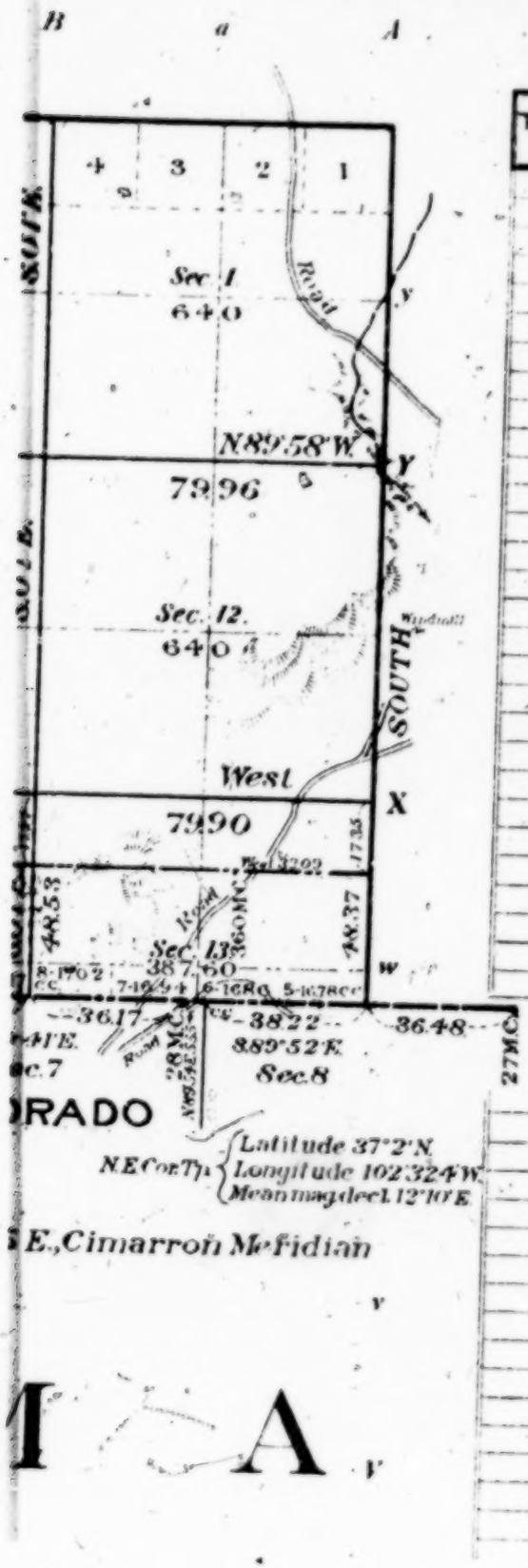
(4-675a)

Resurvey Fractional Township No. 35 South, Range No. 46 West of the 6th Principal Meridian in Colorado



OKLAHOMA

eridian in Colorado.

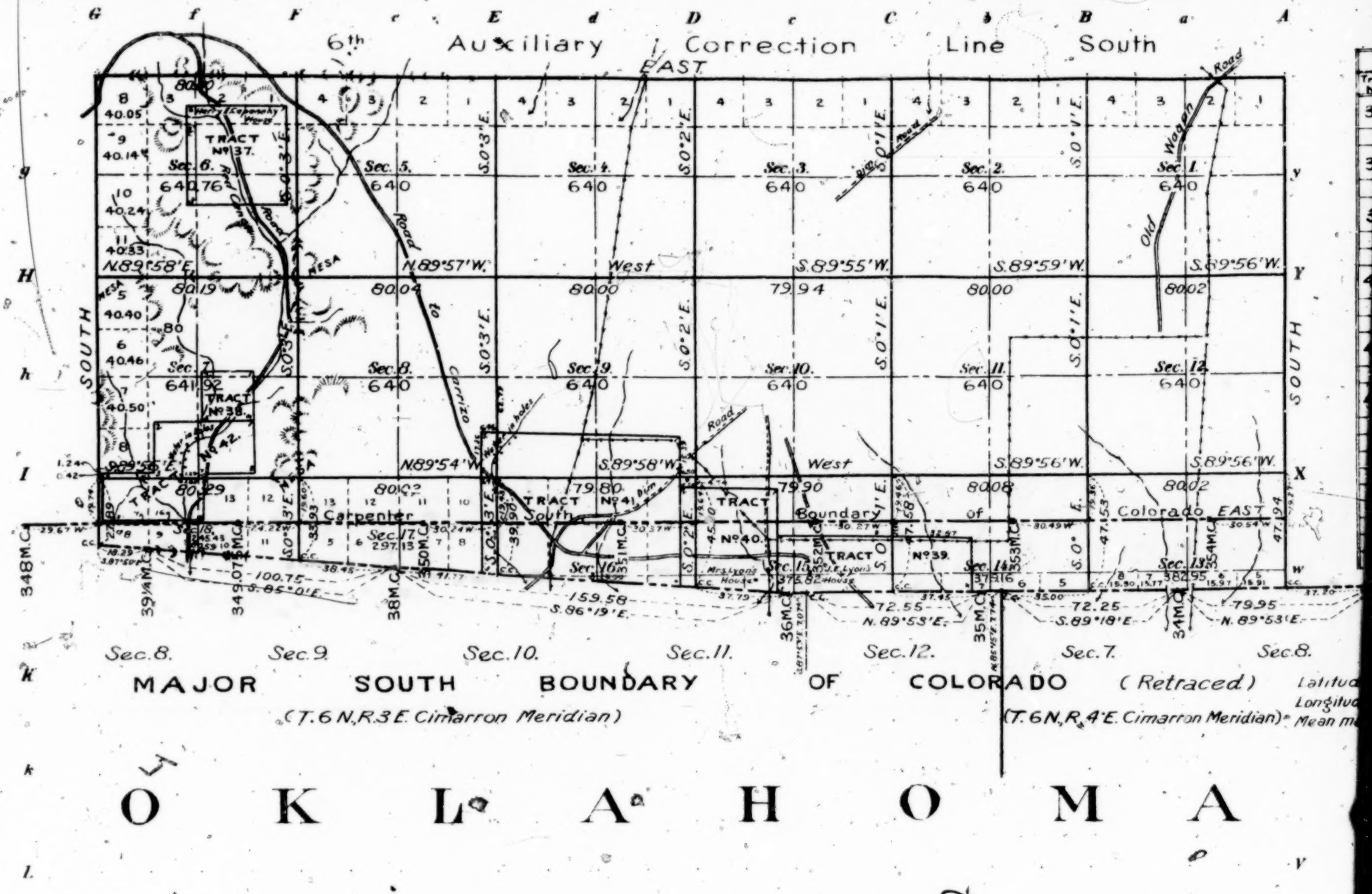


See Supplemental Diagram

Tract No	Sections	Entry and Entryman	Original Description
37	10,14,15,T 35 S R 46 W	F Bd Cit.; Fred Malm	NE¼ NE¼ and S½ NE¼ Sec. 15 and SW¼ NW¼ Sec. 14 T. 35 S., R 46 W.
38	8,9,16,17,T 35 S R 46 W		School Section 16 T 35 S R 46 W

Resurvey

Fractional Township No. 35 South, Range No. 47 West of the 6th Principal Meridian, Colorado.



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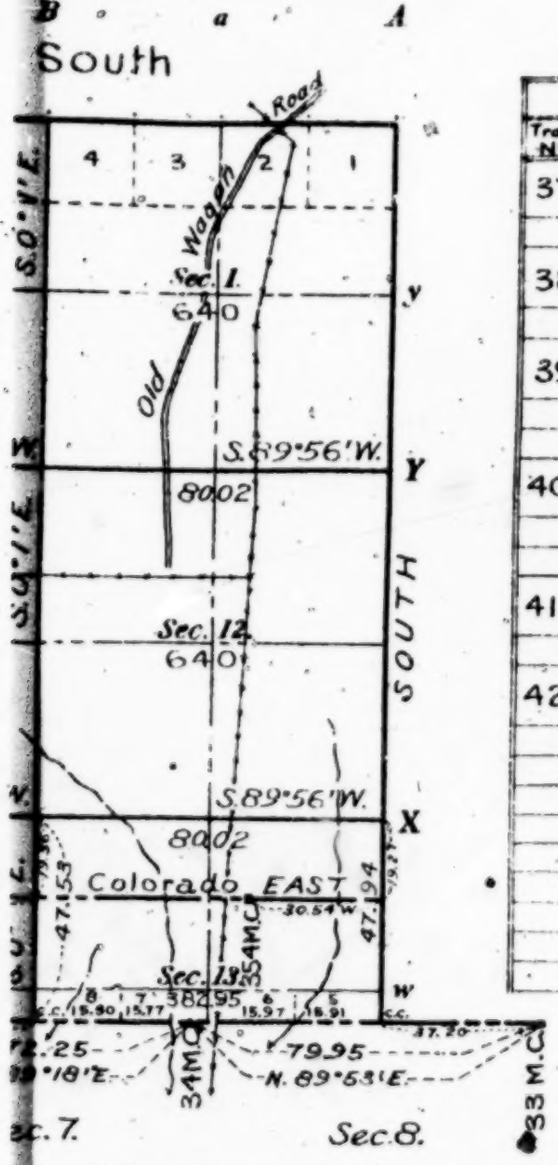
eridian Colorado.



(Retraced)

4 E. Cimarron Meridian)

Latitude 37°02'N.
Longitude 102°39'W.
Mean mag. decl. 12°31'E
} At N.E. Cor. Tp.

See Supplemental Diagram.

Tract No	Sections	Entry and Entryman	Original Description
37	6, T.35S., R.47 W.	Hd. Harry E. Capansky	S.E. 1/4, Sec. 6 T.35S., R.47 W.
38	7, T.35S., R.47 W.	Forest Lieu Selection William E. Moses	S.W. 1/4 S.E. 1/4, Sec. 7 T.35S., R.47 W. (6th P.M.)
39	14, 15, T.35S., R.47 W.	F. Hd. Ctf. John Ellsworth Lyons	Lots 3 and 4, Sec. 14, Lots 1 and 2, Sec. 15, T.35S., R.47 W.
40	15 and 16, T.35S., R.47 W.	Hd. Mary Lyon	Lots 3 and 4 and S1/2 N.W. 1/4, Sec. 15, T.35S., R.47 W.
41	8, 9, 16 and 17 T.35S., R.47 W.		School Section 16, T.35S., R.47 W.
42	7 and 18, T.35S., R.47 W.	Com. to C.E. William E. Hughes	S1/2 N.W. 1/4, N.E. 1/4 N.W. 1/4, N.W. 1/4 N.E. 1/4 Sec. 18 T.35S., R.47 W.

See Supplemental Diagram for areas of all lots in Sec's 14, 15, 16, 17 and 18.

M

N

O

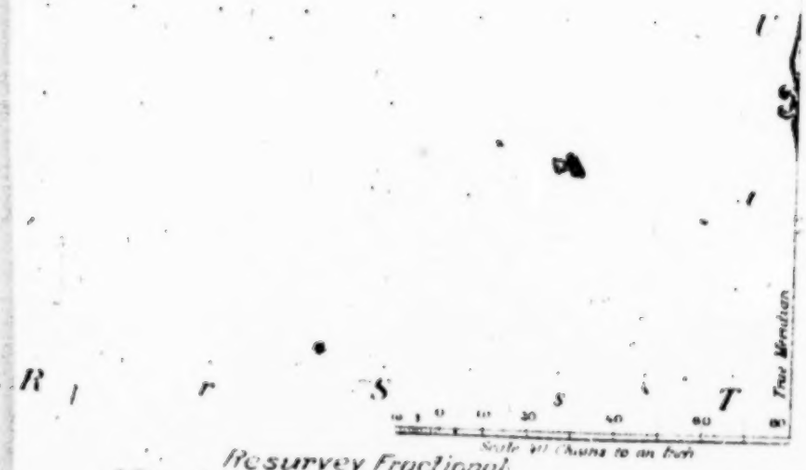
Public Land 9293.90
Private " 726.26 Total number of Acres 10020.16

P

Q

R

Survey Designated	By Whom Surveyed	No.	Date of Contract	Amount of Survey M Chs Lks	When Surveyed	
West Township line.	Arthur D. Kidder and Jay P. Hester	863	April 20, 1908			
Subdivisions	" " " "	"	" " "		Nov 7, 1908	Resurvey
Connections	" " " "	"	" " "	25 - 03 - 94	" 20 23 "	"



Resurvey Fractional

The above Map of Township No. 35 South of Range No. 45 West of the 6th Principal Meridian in Colorado is strictly conformable to the field notes of the survey thereof on file in this Office, which have been examined and approved

Surveyor Generals Office
Denver, Colo. November 6th 1909

A. L. Lewis
Surv. Gen'l

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan. 20, 1922.
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

Geo. W. Tuckleman
Assistant Commissioner

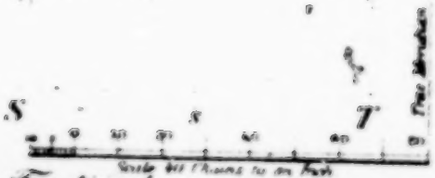
OKLAHOMA

Public Land 9339.30
Private " " 656.21

Total number of Acres 9995.51

Surveys Designated	By Whom Surveyed	No.	Date of Contract	Amount of Surveys M Ch's Lk's	When Surveyed	
East and West Township lines	Arthur D. Kidder and Jay P. Hester	863	April 29th 1908		Nov 5th - 7th 1908	Resurvey
Subdivisions	" " "	"	" " "	25 - 01 - 15	" 12th - 14th " "	" "
Connections	" " "	"	" " "	5 - 05 - 01	" " " " "	" "
6th Aux Corr Line South	" " "	"	" " "		" 7th " "	" "
Major South Bdy Okla.	" " "	"	" " "		Oct 30th - Nov 5th " "	Retracement

O M A



Resurvey Fractional

The above Map of Township No. 35 South of Range No. 46 West of the 6th Principal Meridian in Colorado is strictly conformable to the field notes of the survey thereof on file in this Office; which have been examined and approved.

Surveyor Generals Office
Denver, Colo. November 6th 1909

W. G. Lewis
Sur. Gen'l

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan. 20, 1922.
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

Assistant Commissioner

724

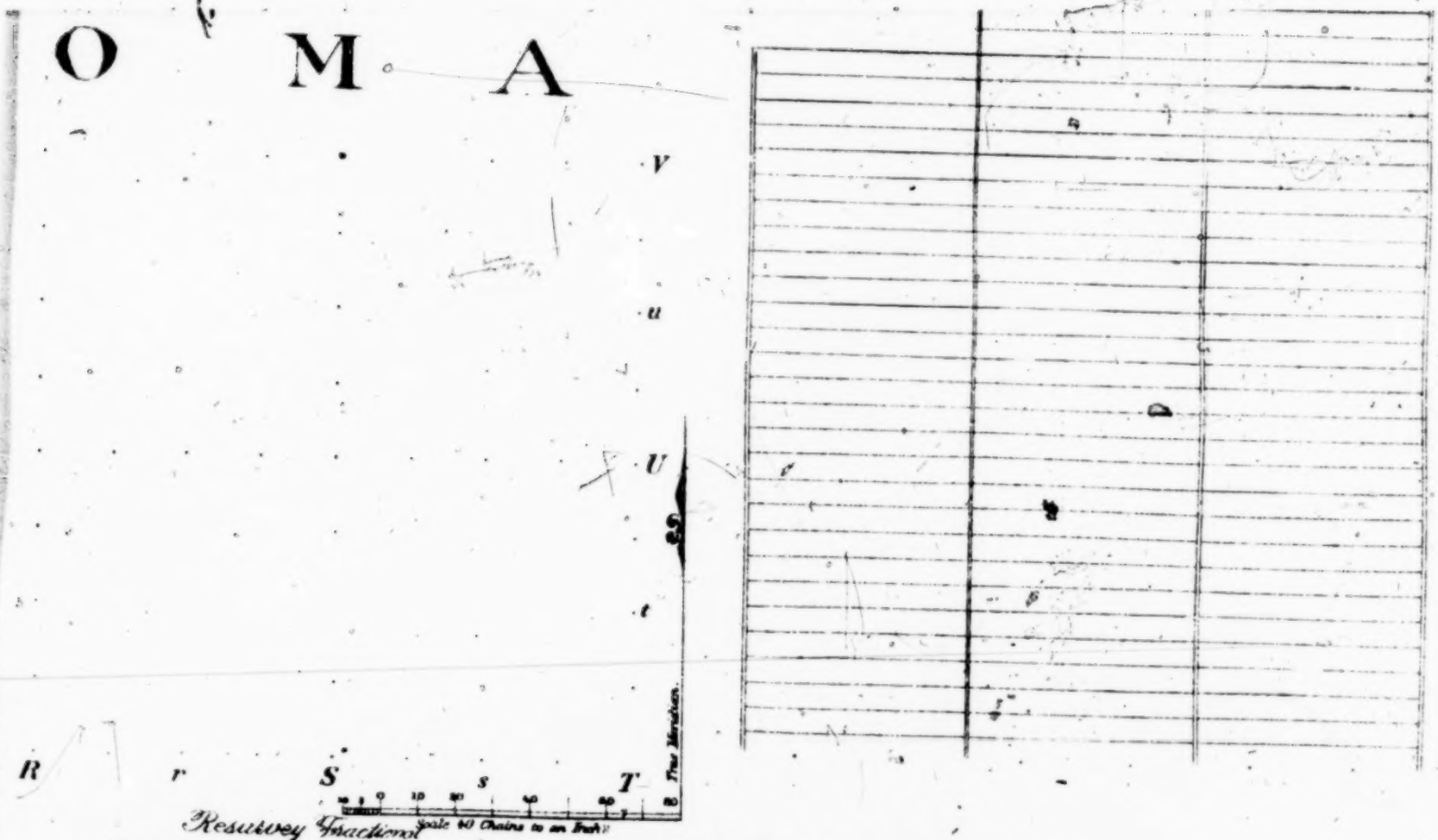
O K L A H O M A

Public Land 8534.23
Private Land 1168.93 } Total number of Acres 9703.16

Survey Designated	By Whom Surveyed	No.	Date of Contract	Amount of Survey M. Ch. Li.	When Surveyed	
W and E Boundaries	Arthur B. Hinder and Jay P. Hester	863	Apr. 20, 1908		Oct. 19-Nov. 1, 1908.	Resurvey
Subdivisions	" " " "	"	" " "	24 - 54 - 4	Nov. 4-6, 1908.	"
Connections	" " " "	"	" " "	5 - 17 - 16	" " " "	"
6th Aux. Corr. Line S.	" " " "	"	" " "		Nov. 1, 1908	"
Major South Bdy. Colo	" " " "	"	" " "		Oct. 19 - 30, 1908.	Retracement

Orig. E.C.B.
Copy E.C.

O M A



Resurvey Fractional

The above Map of Township No. 35 South of Range No. 47 West of the 6th Principal Meridian in Colorado is strictly conformable to the field notes of the Resurvey thereof on file in this Office, which have been examined and approved.

Surveyor Generals Office
Denver, Colo November 6th 1909

N. J. Lewis
Sur. Gen.l

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C. Jan 20 1922
I hereby certify that [illegible] is a true copy of the original survey of the lands to which it purports to be in this office.

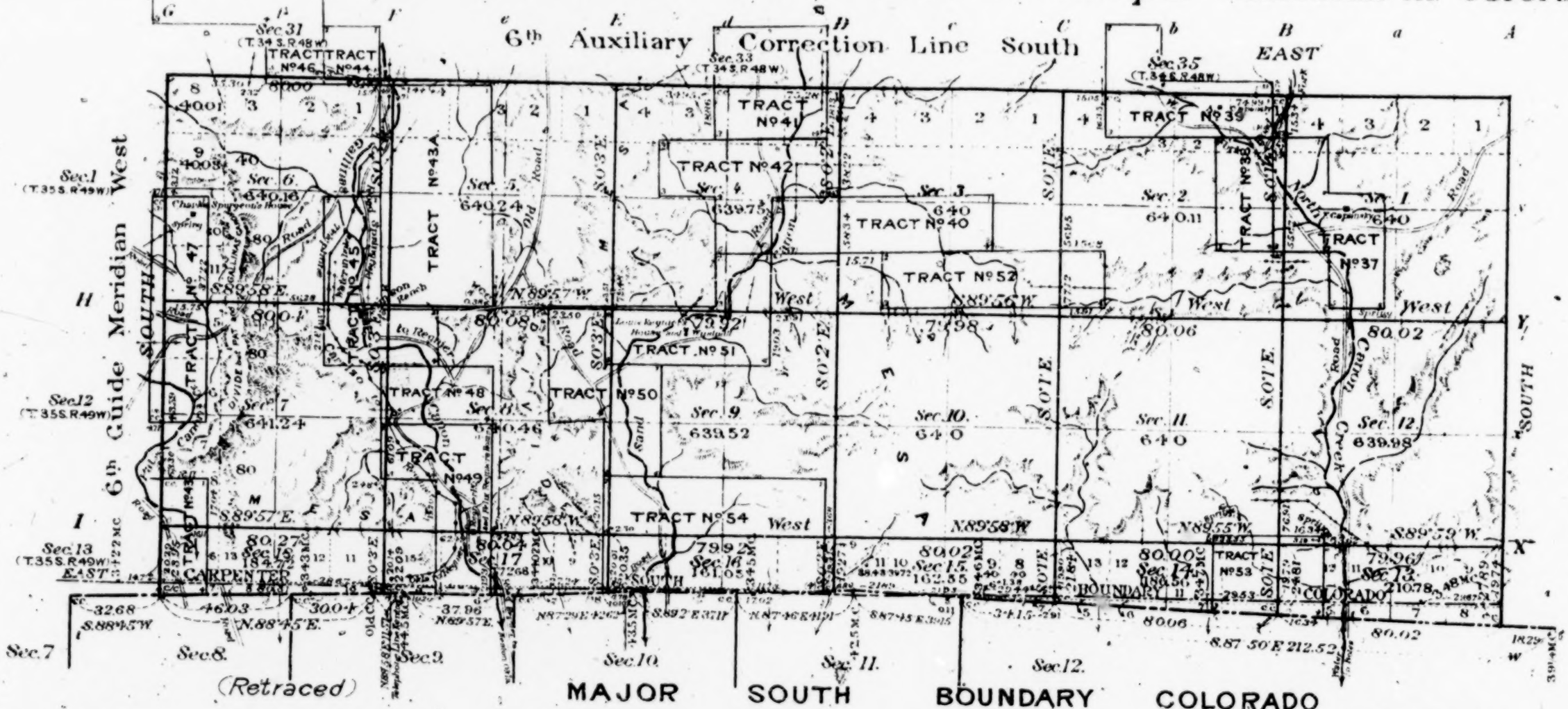
[illegible]
Assistant Commissioner

725

New Mexic
Orig No.
P. 17 of

(4-675a)

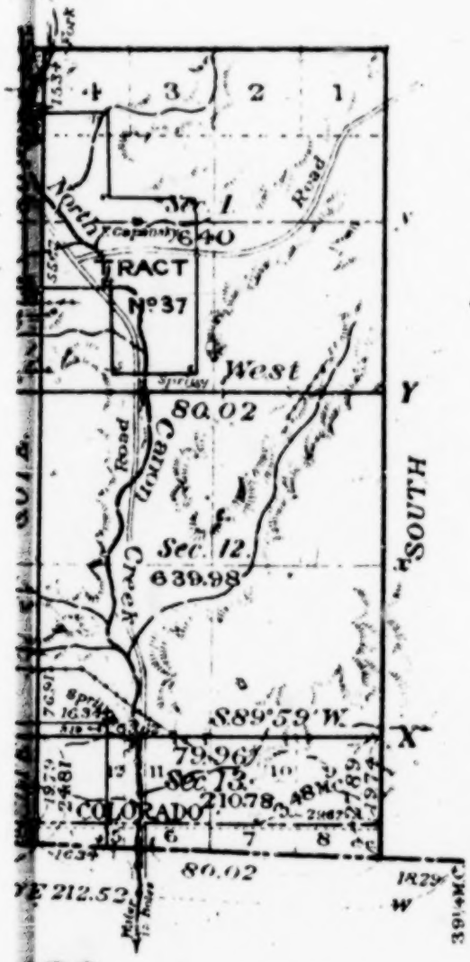
Resurvey Fractional Township No. 35 South Range No. 48 West of the 6th Principal Meridian in Colorado.



O K L A H O M A

New Mexico v. Colorado | Colorado Ex. 13
Orig No. 17
P. 17 of Testimony | Domorgan Ex.

...eridian in Colorado.



...ADO

N.E. Cor. Tp. { Latitude 37° 2' N. / Longitude 102° 45.5' W. / Mean mag. decl. 12° 15' E.

A

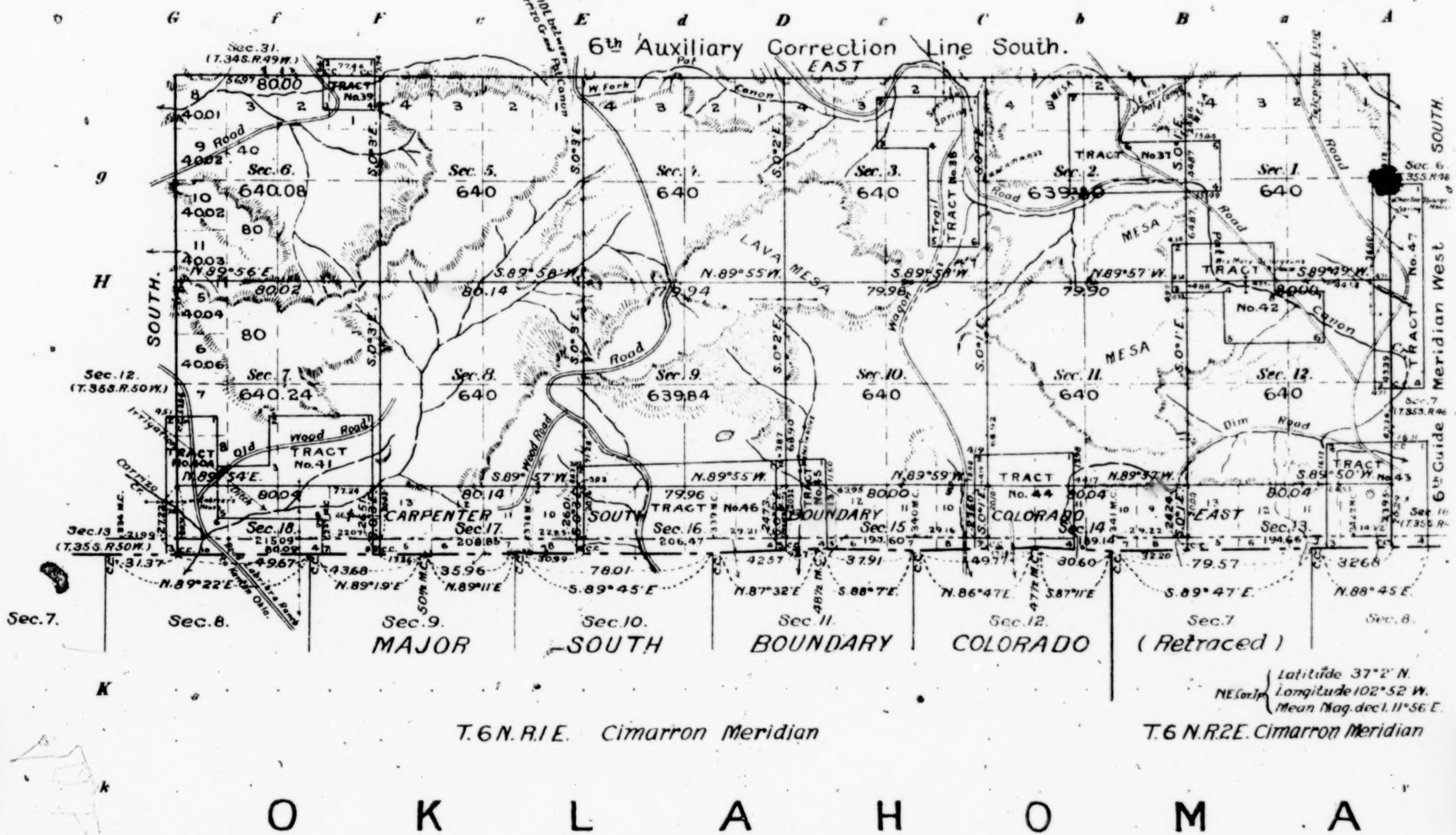
See Supplemental Diagrams

Tract No	Sections	Entry and Entryman	Original Description
37	1,2,T.35 S.R.48 W	F. Hd Ctf Ferdinand Capansky	NE¼ NW¼ Sec 12 and W½ SW¼ and SE¼ SW¼ Sec 1, T.35 S.R.48 W
38	2,T.35 S.R.48 W	D.L.E. Ferdinand Capansky	E½ SE¼ Sec 2 T.35 S.R.48 W
39	2,T.35 S.R.48 W 35,T.34 S.R.48 W	F. Hd Ctf Andrew Capansky	Lot 3, SE¼ NW¼ and S½ NE¼, Sec 2, T.35 S.R.48 W
40	3,4,T.35 S.R.48 W	Hd. Ed Herman	S½ SW¼ and SW¼ SE¼ Sec 3, and SE¼ SE¼, Sec 4, T.35 S.R.48 W
41	4,T.35 S.R.48 W 33,T.34 S.R.48 W	F.D.L.E. Pedro Albarado	Lots 1 and 2 and S½ NE¼ Sec. 4, T.35 S.R.48 W
42	4,T.35 S.R.48 W	F. Hd Ctf Pedro Albarado	NE¼ SW¼, W½ SE¼, and NE¼ SE¼ Sec 4, T.35 S.R.48 W
43A	5,6,7,8,T.35 S.R.48 W	Final D.L.E. Augustus G.B. Schroder	N½ NW¼, Sec. 8, and S½ NW¼, and SW¼ Sec. 5, T.35 S.R.48 W
44	6,T.35 S.R.48 W 31,T.34 S.R.48 W	T and S. Cash Entry Addie Schroder	NE¼ NE¼ Sec 6, T.35 S.R.48 W
45	6,7,8,T.35 S.R.48 W	F. Hd Ctf Martha E. Schroder	SE¼ SE¼, Sec 6, E½ NE¼ Sec 7 and SW¼ NW¼ Sec 8, T.35 S.R.48 W
46	6,T.35 S.R.48 W 31,T.34 S.R.48 W 36,T.34 S.R.49 W	F. Hd Ctf Francisco Sandoval	NW¼ NE¼ Sec 6, T.35 S.R.48 W and SW¼ SE¼ and S½ SW¼ Sec. 31, T.34 S.R.48 W
47	6,7,T.35 S.R.48 W 1,12,T.35 S.R.49 W	F. Hd Ctf Charles Spurgeon	Lot 7, Sec 6 and Lots 1, 2 and 3, Sec 7, T.35 S.R.48 W
48	7,8,T.35 S.R.48 W	D.L.E. Felix Regnier	N½ SW¼ Sec 8, T.35 S.R.48 W
49	7,8,17,T.35 S.R.48 W	F. Hd Ctf Felix Regnier	S½ SW¼, Sec 8, and NE¼ NW¼ and Lot 3 Sec 17 T.35 S.R.48 W

(4-675g)

Resurvey

Fractional Township No 35 South, Range No 49 West of the 6th Principal Meridian, Colorado.

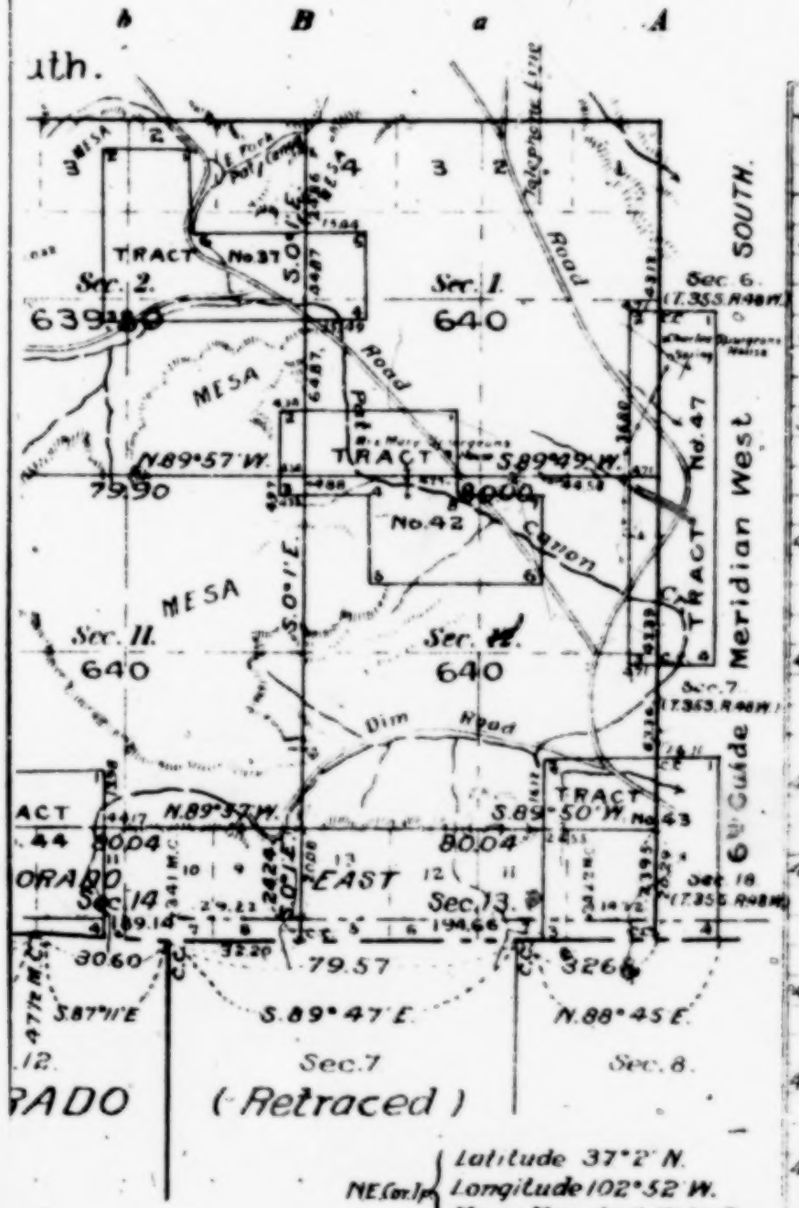


O K L A H O M A

Colorado Ex 17
Donnegan
Exd.

Dep. No. 17.
P. 17 of Testimony.

...ncipal Meridian, Colorado.



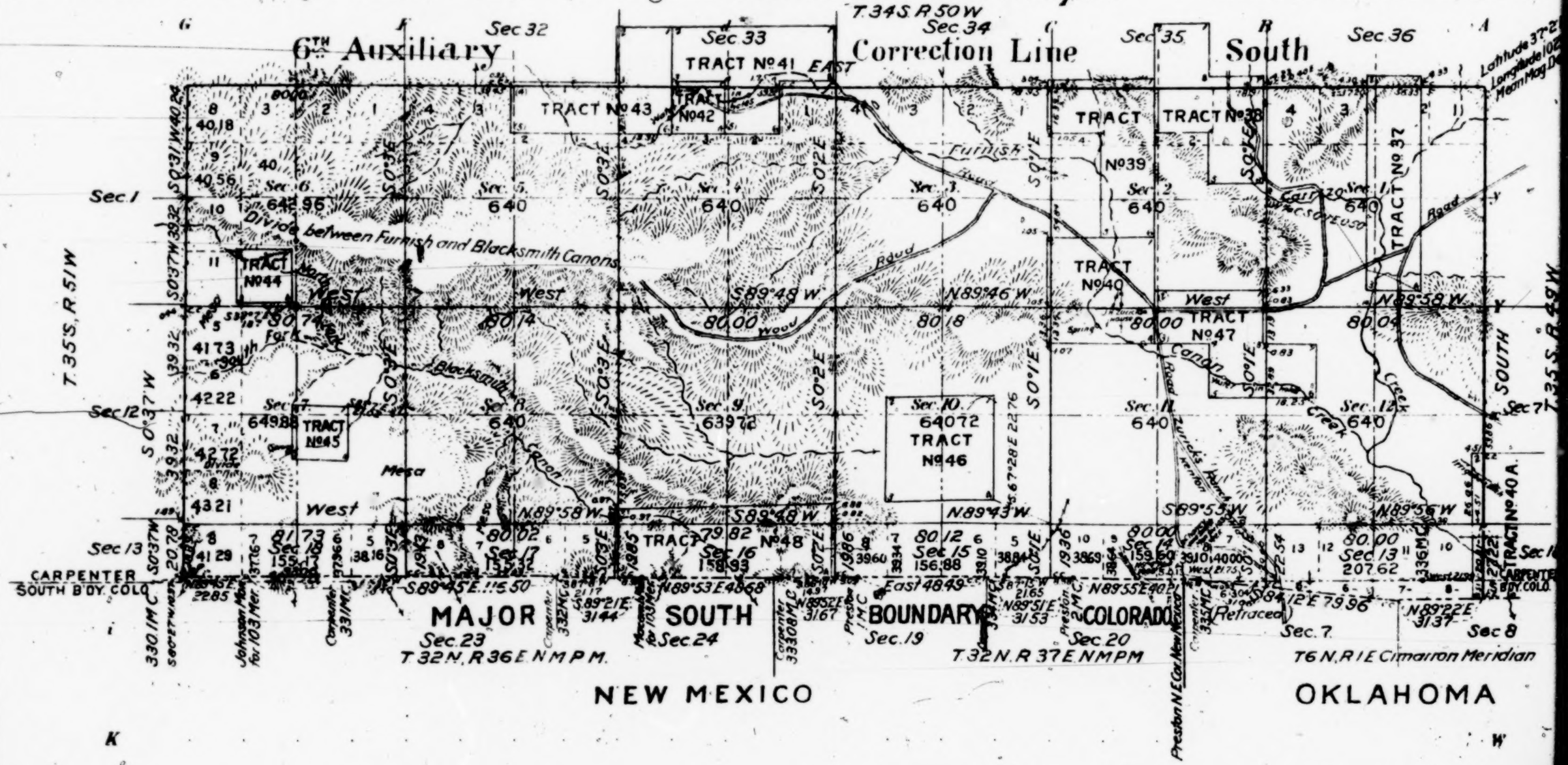
TRACT No.	Sections	Entry and Entryman	Original Description
		F. Hd Clf.	N.W¼ S.W¼, Sec 1 and N.
37	1-2, T.35S. R.49W.	Abel W. Capansky	½ S.E¼ and S.W¼ N.E¼ Sec 2 T.35S. R.49W.
38	3, T.35S. R.49W.	F. Hd. Clf.	S½ N.E¼ and E½ S.E¼
		Fred Copenbarger	Sec 3, T.35S. R.49W.
39	6, T.35S. R.49W.	T. and S. Cash E.	N.E¼ N.W¼ Sec 6,
	31, T.34S. R.49W.	Addie Schröder	T.35S. R.49W.
40A	7-18, T.35S. R.49W.	F. Hd Clf.	Lot 4, Sec 7 and Lots 3 and 4, Sec 18,
	12-13, T.35S. R.50W.	George Jay Cornish	T.35S. R.49W.
41	7-18, T.35S. R.49W.	D.L.E.	N.E¼ N.W¼, N½ N.E¼, and Lot 5, Sec 18, and S.
		Alzina Harrington	½ S.E¼ Sec 7 T.35S. R.49W.
42	1-2-11-12, T.35S. R.49W.	F. Hd Clf.	N.½ N.W¼, S.E¼ N.W¼, and S.W¼ N.E¼ Sec. 12,
		Mary E. Spurgeon	T.35S. R.49W.
43	12-13, T.35S. R.49W.	Pre-E	N.E¼ N.E¼ and Lot 1, Sec 13
	7-18, T.35S. R.48W.	John L. Labrier	T.35S. R.48W. and Lots 1 and 2, Sec 18, T.35S. R.48W.
44	10-11-14-15, T.35S. R.49W.	F. Hd Clf.	Lots 3, 4, and N½ NW¼
		George T. Wood	Sec. 14 T.35S. R.49W.
45	9-10-15-16, T.35S. R.49W.	Com to C.E.	Lot 4 and NW¼ NW¼
		Robt. N. Tharp Sr.	Sec. 15, T.35S. R.49W.
46	8-9-16-17, T.35S. R.49W.		Schutt Section 16 T.35S. R.49W.
47	1-12, T.35S. R.49W.	F. Hd Clf.	Lot 7, Sec 6, and Lots 1-2
	6-7, T.35S. R.48W.	Charles Spurgeon	and 13, Sec 7 T.35S. R.48W.

O M A

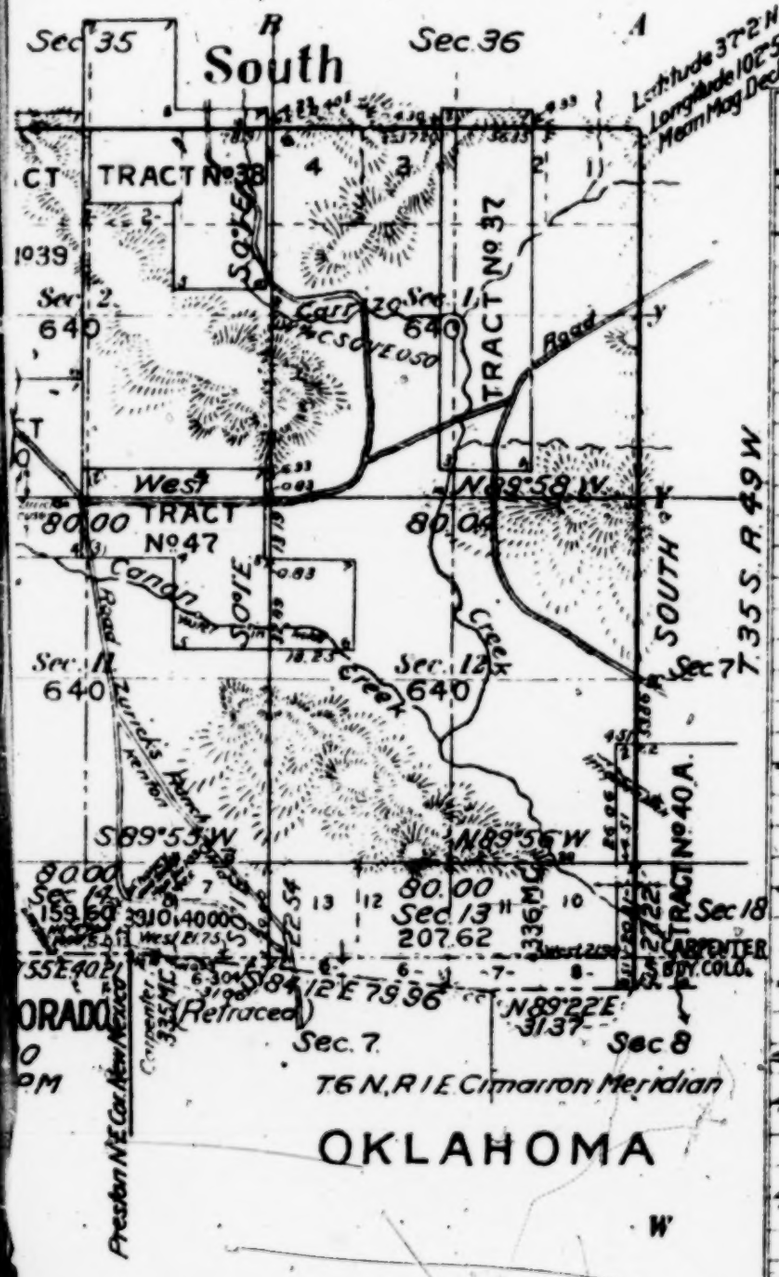
(4-675a)

Resurvey

Fractional Township No. 35 South, Range No. 50 West of the 6th Principal Meridian, Colorado



/ Meridian, Colorado



SEE SUPPLEMENTAL DIAGRAMS.

TRACT No	Sections	Entry and Entryman	Original Description
37	1 T. 35 S. R. 50 W. 36 T. 34 S. R. 50 W.	F. Hd. Edward C. Hamington	W½ N.E¼ and W½ S.E¼ Sec 1 T. 35 S. R. 50 W.
38	2 T. 35 S. R. 50 W. 35 T. 34 S. R. 50 W.	Hd. Charles H. Wood	Lots 1 and 2, S.E¼ N.E¼ Sec 2 T. 35 S. R. 50 W. and S.W¼ S.E¼ Sec. 35 T. 34 S. R. 50 W.
39	2, 3, T. 35 S. R. 50 W. 34, 35 T. 34 S. R. 50 W.	D. L. E. John H. Zurick	Lots 3 and 4, S.E¼ N.W¼ and N.E¼ S.W¼ Sec 2 T. 35 S. R. 50 W.
40	2, 3, 10, 11, T. 35 S., R. 50 W.	F. Hd. Clt. Ed. Eddleman	S½ S.W¼, Sec 2, N½ N.W¼, Sec 11, T. 35 S. R. 50 W.
40A	12, 13 T. 35 S. R. 50 W. 7, 18 T. 35 S. R. 49 W.	F. Hd. Clt. George Jay Cornish	Lot 4 Sec. 7, Lots 1, 2, 3, 4 Sec. 18 T. 35 S. R. 50 W.
41	4 T. 35 S. R. 50 W. 33 T. 34 S. R. 50 W.	Hd. Isaac O. Cochran	Lot 2 Sec. 4 T. 35 S. R. 50 W. S.E¼ S.W¼ and S½ S.E¼ Sec. 33 T. 34 S. R. 50 W.
42	4 T. 35 S. R. 50 W. 33 T. 34 S. R. 50 W.	Forest Lieu S. William E. Moses	Lot 3 Sec. 4, T. 35 S., R. 50 W.
43	4, 5, T. 35 S. R. 50 W. 32, 33 T. 34 S. R. 50 W.	Hd. Horatio C. Arnold	Lot 4 Sec. 4 and Lots 1 and 2 Sec. 5, T. 35 S. R. 50 W. S½ S.W¼ Sec. 33 T. 34 S. R. 50 W.
44	6 T. 35 S. R. 50 W.	Com. to C. E. Leimuel B. Ball	S.E¼ S.W¼ Sec. 6 T. 35 S. R. 50 W.
45	7 T. 35 S. R. 50 W.	F. Hd. Clt. George G. Graham	N.W¼ S.E¼ Sec. 7 T. 35 S. R. 50 W.
46	10 T. 35 S. R. 50 W.	Hd. Charles J. Collins	W½ S.E¼ and E½ S.W¼ Sec 10 T. 35 S. R. 50 W.
47	2, 11, 12 T. 35 S. R. 50 W.	Pre. E. James Stinson	E½ N.E¼ and N.W¼ N.E¼ Sec. 11 S.W¼ N.W¼ Sec. 12 T. 35 S. R. 50 W.
48	8, 9, 16, 17 T. 35 S. R. 50 W.		School Sec 16. Frac. T. 35 S. R. 50 W.

O K L A H O M A

k

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M

m

N

Public Land 6196.65
Private " " 2563.15

n O o P p Q q R

Total number of Acres 8759.80

Surveys Designated	By Whom Surveyed	No	Date of Contract	Amount of Surveys M Ch Lks	When Surveyed	
East Township line	Arthur B Kibler and Jay D Hester	863	April 20th 1908		Oct. 19th-1908	Resurvey
Subdivisions	" " "	"	" " " "	23 - 28 - 67	Nov 3d-6th 1908	" "
Connections	" " "	"	" " " "	8 - 29 - 83	" " " "	" "
4th Guide Mer West	" " "	"	" " " "		Oct 14th "	" "
6th Aux Cor Line South	" " "	"	" " " "		Oct 14th-15th "	" "
Meander South Bdy Colo	" " "	"	" " " "		Oct 12th to Oct 20th 1908	Retracement

49	7,8,17 T.35 S.,R.48W.	F.Hd.Ctf. Felix Regnier	S½ SW¼, Sec. 8, and NE¼ NW¼ and Lot 3 Sec. 17 T. 35 S., R.48W.
50	5,8,9, T.35 S.,R.48W.	Hd. Eli A. Thomas	SE¼ NE¼ and NE¼ SE¼, Sec. 8, and W½ SW¼ Sec. 9 T.35 S., R.48 W.
51	4,5,8,9 T.35 S., R.48W.	Hd. Louis Regnier	S½ NW¼ and W½ NE¼ Sec. 9 T.35 S., R.48 W.
52	2,3, T.35 S., R.48W.	Hd. J.F. McCullough	N½ NE¼ and NE¼ NW¼ Sec. 10 and NW¼ NW¼ Sec. 11, T. 35 S., R.48 W.
53	11,12,13,14, T. 35 S., R.48W.	T. and S. Cash E. William T. Hughes	Lot 4, Sec. 13 and Lot 1, Sec. 14, T. 35 S., R.48W.
54	8,9,16,17 T.35 S., R.48W.		School Section 16 T.35 S., R.48W.
43	7,18, T. 35 S., R.48W. 12,13, T.35 S., R.49W.	Pre. E. John L. Labrier	NE¼ NE¼ and Lot 1, Sec. 13 T.35 S., R.49 W. and Lots 1 and 2 Sec. 18 T. 35 S., R.48W.

See Supplemental Diagrams for areas of lots in Sections 13, 14, 16, 17 and 18.

Resurvey Fractional

The above Map of Township No. 35 South of Range No. 48 West of the 6th Principal Meridian in Colorado, is strictly conformable to the field notes of the survey thereof on file in this Office, which have been examined and approved.

Surveyor Generals Office.
Denver Colorado November 6th 1909

W. G. Lewis
Sur. Genl.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan 20, 1922.
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

George Dunham
Assistant Commissioner

k

O K L A H O M A

L

l

M

m

N

n O o P p Q q R

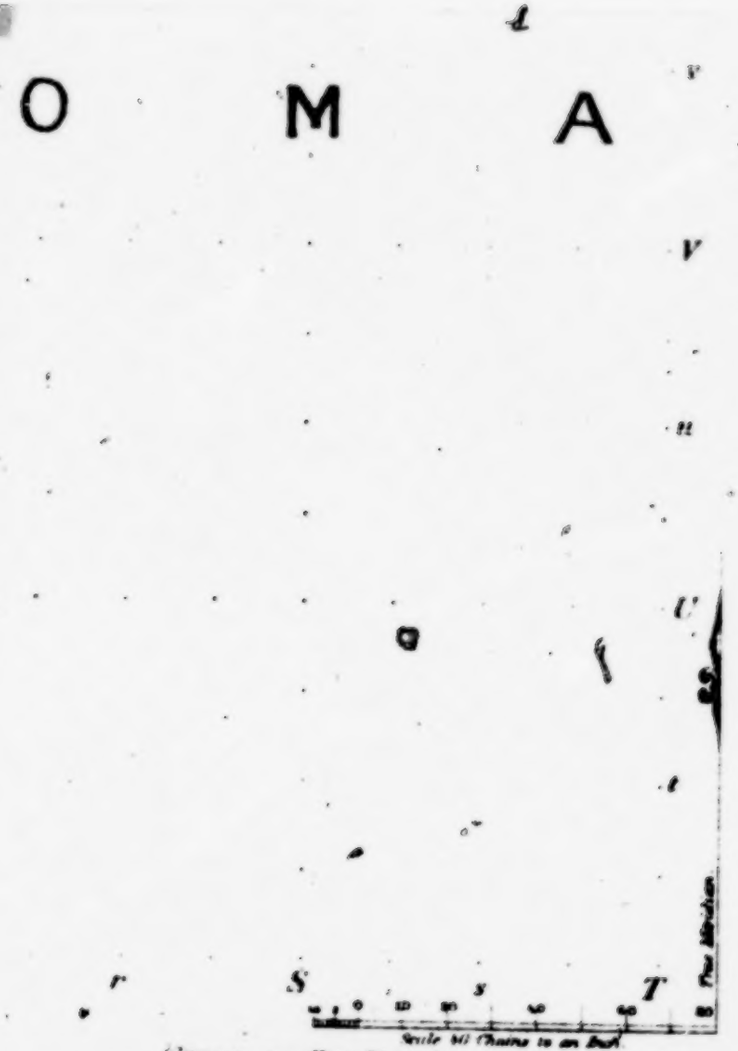
Public Land 7374.80
Private 1516.97

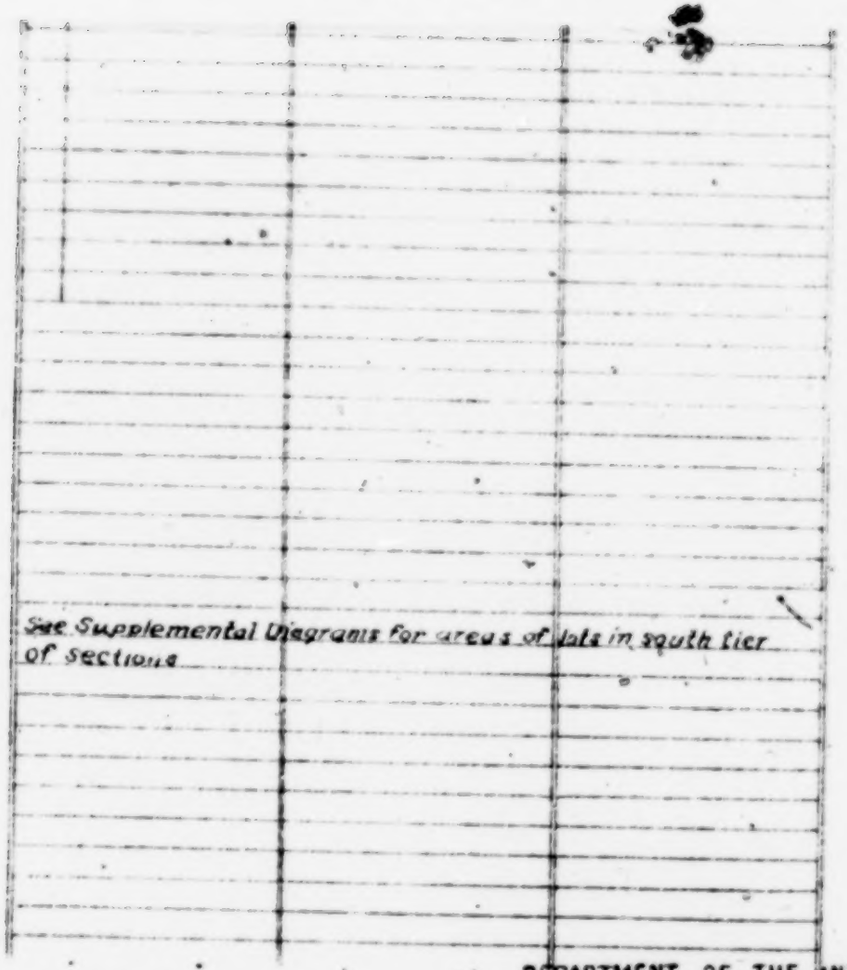
Total number of Acres 8891.77

Surveys Designated	By Whom Surveyed	Date of Contract No.	Amount of Surveys M. Ch.s L.ks	When Surveyed	
West Township line	Arthur D. Ridder and Jay P. Hester	863 April 20, 1908		Oct. 10, 1908	Resurvey
Subdivisions	" " " "	" " " "	23 - 45 - 29	" 25 31, "	"
Connections	" " " "	" " " "	5 - 63 - 16	" " " "	"
6th Aux. Corr. Line S.	" " " "	" " " "		" 12 13, "	"
6th Guide Mer West.	" " " "	" " " "		" 14, "	"
Major South Bdy Colo	" " " "	" " " "		" 9 12, "	Retracement

O

Orig Whyte
Copy G.W.W.





See Supplemental Diagrams for areas of lots in south tier of sections

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C. Jan. 20, 1922
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

Assistant Commissioner.

Resurvey Fractional

The above Map of Township No. 35 South of Range No. 49 West of the 6th Principal Meridian in Colorado is strictly conformable to the field notes of the survey thereof on file in this Office, which have been examined and approved.

Surveyor Generals Office
Denver, Colo. November 6th 1919

Sur. Gen.

NEW MEXICO

OKLAHOMA

Preston N E Co

K W

k v

L V

l u

M U

m t

N n O o P p Q q R

Public Land 7347.46
Private Land 1339.34

Total number of Acres 868680

Surveys Designated	By Whom Surveyed	Date of Contract No.		Amount of Surveys M. Ch. Lk.	When Surveyed	
E. Township line	Arthur D. Kidder & Jay P. Hesta	863	April 20, 1908		October 10, 1908	Resurvey
Subdivisions	" " " "	"	" " "	23 - 23 - 53	October 11-17, 1908	"
Connections	" " " "	"	" " "	3 - 77 - 71	" " " "	"
6th Aux Cor Line S	" " " "	"	" " "		" 10 "	"
W. Township Line	" " " "	"	"		" 8, "	Re established
Major S Bdy Colo	" " "	"	"		7 9, "	Retracement

C W S Orig.

46	10.T.35S.R.50W.	Hd. Charles J. Collins	W½ SE¼ and E½ SW¼ Sec 10 T.35S. R.50W.
47	2.11.12.T.35S. R.50W.	Pre. E. James Stinson	E½ NE¼ and NW¼ NE¼ Sec 11. SW¼ NW¼ Sec 12 T.35S.R.50W.
48	8.9.16.17.T.35 S. R.50W.		School Sec 16. Frac. T.35S. R.50W.

Note - See supplemental diagrams for areas of lots in Sections 13.16 and 17

Resurvey Fractional

The above Map of Township No. 35 South of Range No. 50 West of the 6th Principal Meridian in Colorado is strictly conformable to the field notes of the survey thereof on file in this Office, which have been examined and approved.

Surveyor Generals Office
Denver Colorado, November 6th 1909

W. G. Lewis
Sur. Gen.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan. 20, 1922

I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

Geo. Wilson
Assistant Commissioner

Q. How long have you held the position of supervisor?

A. Since the inauguration of what is known as the direct system of surveys, from June 25, 1910.

Q. Prior to that time what had been your occupation or official position, if any?

A. In the fall of 1895 I entered the employ of the United States Geological Survey and served in that bureau until early in 1899 when I entered the general land office as an examiner of surveys. In 1905 I resigned from the general land office and entered the private engineering practice in Wyoming, a larger part of my work being the execution of public land surveys under contract with the United States government. On the abolition of the contract system by Congress, June 25, 1910, I was appointed supervisor of surveys of the general land office.

[fol. 778] Q. In the course of your official work under the general land office, have you had occasion to make any examination of the surveys of the southern boundary line of Colorado?

A. I have.

Q. When was the first,—when did you first begin any examination of that kind?

A. The first examination was when I was instructed to examine the east boundary line of the Southern Ute Indian Reservation, the southeast corner of which was on the southern boundary of Colorado.

Q. When was that?

A. In 1899.

Q. Mr. Johnson was that southeast corner of the Indian Reservation on what is now known as the Darling line, or what did you discover, if anything upon that subject?

A. I rejected the survey of the east boundary of the Ute Reservation as executed by George F. Ober. I cannot recall what I found at the southeast corner of the Indian reservation without referring to the record.

Q. We do not want you to rely on your memory.

A. (After referring to the records.) The Darling line could not be found at that point.

Q. Did your instructions include or require how you should relocate the corner of the Indian Reservation on the Darling line?

A. No, sir.

Q. Only that you should locate on the south boundary of Colorado?

A. Yes, I had no instructions to locate corners.

Q. What was the purport of your instructions merely?

A. Primarily to examine the survey of the east boundary of the Southern Ute Indian Reservation as executed by Ober. It was necessary to find the Darling corner in order to make a proper examination.

[fol. 779] Q. Did Ober survey to correct that corner, or to locate that corner on the Darling line; do you recollect as to that?

A. I do not recall.

Q. You say the Darling line could not be located at that place?

A. No. It could not.

Q. To what extent did you make an examination or search of the Darling line in that vicinity?

A. I made an exhaustive search.

Q. What did that consist of?

A. I made an exhaustive search westerly to the vicinity of the Navajo river and easterly beyond the town of Edith.

Q. State what you found; you found some markings on the Darling line in that vicinity in that extended examination, did you not?

A. I do not think that I found any evidences of the Darling line in the examination that I made that year, but was able to determine the general position of the line from the original field notes.

Q. You had Darling's field notes at that time?

A. I did, in 1899.

Q. What did you find as to bearings or the location of the southeastern corner of the Indian reservation?

A. I was unable to determine whether it was on the old Darling line or not.

Q. Was that one of your reasons for your rejecting the survey of the east line of the Indian reservation?

A. I cannot recall. I am certain, however, that the east boundary was defective in alignment and measurement, which alone would have been cause for recommending rejection of the survey.

Q. From how many miles did you make that search east and west from the supposed point of the southeast corner of the Southern Ute Indian Reservation, in your effort to discover some evidence of the Darling line, approximately?

A. Approximately fifteen miles.

[fol. 780] In that fifteen miles, even with the assistance of Darling's notes you were not able to discover on the ground evidences of his survey?

A. Not, as I recall, any evidences of the original survey.

Q. That was in 1899?

A. Yes sir.

Q. When next did you have occasion to make any examination of the line in question upon the southern boundary of Colorado?

A. The next year, 1900.

Q. Did you make a further examination at that time under the instructions of the land office?

A. Under the instructions of the commissioner of the general land office, yes sir.

Q. As shown by those instructions what was the purpose and object of the examination you were then directed to make?

A. As I recall it, to report survey conditions on and along the Darling line.

Q. Was it one of the purposes of your examination to attempt to identify and relocate the Darling line on the earth's surface?

A. The purpose was to find and identify the Darling line.

Q. Was it one of the purposes of your examination to do that?

A. It was.

Q. And to what extent was that examination devoted to that purpose, that is for how great a distance along the line?

A. The examination included the line between the sixth and eighth astronomical monuments of the Darling survey.

Q. Can you state by reference to any settlements or towns or locations; by that means can you give the location over or along the line of these monuments?

A. Yes; astronomical station number six on the Darling survey was near the head of the Toltec gorge, near the railroad station of Osier. Astronomical station number seven was in the valley of the Navajo river at about the southwest corner of the town of Edith. [fol. 781] And astronomical monument number eight was in the general vicinity of Arboles on the Denver and Rio Grande Western Railroad.

Q. About how many miles of that line did that cover?

A. Sixty miles of the line.

Q. Along that sixty miles how far were you able to identify or find markings on the earth's surface of the Darling line?

A. Astronomical station number six of the Darling survey was found and fully identified as were also a number of the corners of the original survey to the west across the Conejos range; but none were found in the valley of the Navajo river, with the exception of a stone found to the southwest of the position of astronomical monument number seven. This stone was marked and buried in the ground. Its position was pointed out to me by old residents of the valley.

Q. The markings on that stone correspond to what was set out in the Darling notes?

A. This stone was not mentioned in the Darling survey as I recall it, but it was at the terminal of the line run by me from astronomical monument number six.

Q. There was no mention in the records of the Darling survey?

A. Not that I recall.

Q. Your survey was run in a westerly direction?

A. Run westerly, yes sir.

Q. How far was that stone that you found from the proper location of astronomical monument number seven as shown by Darling's notes?

A. I am unable at this time to give the exact distance.

Q. Approximatey?

A. It was approximately thirty-five chains.

Q. The old residents pointed out that stone to you?

A. Yes.

Q. What did they state to you as to what it meant?

A. The old residents thought that the stone was a monument on the Darling survey. Some of them claimed to remember when the [fol. 782] surveyors came over the mountain from the east side and set that stone.

Q. The stone was southwest of the proper location of monument number seven?

A. Yes, sir.

Q. About thirty-five chains?

A. Yes, sir.

Q. From that point where the stone was, did you project the old line further west, or did you go to the proper location of seven as shown by Darling's notes?

A. I continued my examination on west from the stone pointed out to me but found no evidences there of the original line, such as blazed trees as I had found on the line to the east thereof.

Q. You did find blazed trees coming from the east up to the vicinity of what was pointed out as the location of that stone?

A. Yes, sir.

Q. Up to the vicinity of where that stone was found?

A. Yes, sir.

Q. How did you identify the location of Darling's monument seven,—by bearing shown in original notes?

A. Yes, sir; from the bearings to mountain peaks noted in the original notes it was possible to find the point from which they all check fairly well.

Q. Did you then continue your examination and attempt to retrace the Darling line west of monument number seven?

A. Yes, sir.

Q. What did you find?

A. As I recall it I found evidences on the two hundred and seventeenth mile corner of the Darling survey and the two hundred and thirty-fifth mile corner of the Darling,—of the same survey.

Q. How far is the two hundred and seventeenth mile corner from [fol 783] monument seven?

A. Between two and three miles.

Q. You found no mile corners between the two?

A. No.

Q. Between monument seven and the two hundred and seventeenth mile corner?

That is correct.

Q. Did you find any mile corners between two hundred and seventeenth and two hundred and thirty-fifth mile corners?

A. No, sir.

Q. Or any other evidences of the Darling line?

A. I found the eighth astronomical station about—between six and seven miles west of the two hundred and thirty-fifth mile corner—westerly.

Q. Did you find mile corners between the two hundred and thirty-fifth and monument number eight?

A. No, sir.

Q. Your attempted identification and examination of the Darling line terminated at monument number eight?

A. Under the instructions mentioned. I have had occasion though to check on the Darling line at various times at other places.

Q. Do you know if the detailed instructions disclosed why this examination and identification of the line was sought by the land office?

A. Simply for the purpose of developing the true condition of the old Darling line, with a view to possible recommendation as to its restoration.

Q. Did you later have occasion to make further examinations or search for the Darling line?

A. In 1901 I continued my investigations of the Darling line.

Q. What part of the line?

A. I examined various parts of the line between the sixth and eighth astronomical stations.

[fol. 784] Q. The same part of the line that you had previously been over?

A. Yes, sir.

Q. Were you able to develop any additional information or means of identification of the line between those monuments than what you had previously found in 1900?

A. I endeavored in 1901 to retrace the boundary lines of the Tierra Amarilla Grant and the Jicarilla Apache Indian Aeservation, east boundary, in the hope of finding closing corners upon the Darling line, but was unable to find such corners. I also made further retracements or examination of the evidence I had developed the year before.

Q. Did the surveys of the Tierra Amarilla Grant and of the Jicarilla Apache Indian Reservation purport to close on the Darling line or have any connection with it?

A. The west boundary of the Tierra Amarilla Grant was resurveyed probably the year before under contract and was reported to have closed on the Darling line. The east boundary of the Jicarilla Apache Indian Reservation, as I recall, was supposed to have closed on the Darling line. I found no evidences of closing corners on either one.

Q. You had the notes those surveyors made of the Indian Reservation?

A. Yes, sir.

Q. And even with the assistance of those notes you could not identify their closing on the Darling line?

A. No, sir.

Examiner Luther: It is 12.35 p. m. and we better recess. To what time?

Mr. Keyes: We had better recess until 2 p. m.

Mr. Claney: All right.

Examiner Luther: Recess will be taken until 2 p. m.

Afternoon Session, Second Day, July 18, 1922

Examiner Luther: You may proceed, gentlemen.

[fol. 785] Mr. Claney: What was the last question this morning?

Examiner Luther: "And even with the assistance of those notes you could not identify their closing on the Darling line?" The answer was, "No, sir."

Mr. Clancy: I do not know whether or not I asked you before recess at the forenoon session, how much of the line, the Darling line, you determined in 1901, or attempted to determine in 1901?

Mr. Johnson: I examined portions of the Darling line between astronomical stations numbers six and eight.

Q. What if anything did you learn from that examination in addition to the examination of the year before, or two years before?

A. I verified my findings of the year before, and also made further attempts, by considering collateral evidence, to find new corners.

Q. What was the result of those attempts?

A. As I recall I found no further evidence of additional corners on the Darling line between these monuments.

Q. Did you have occasion—do you know the reasons why you were instructed to make this further examination in 1901?

A. I do not recall the specific reasons at this time.

Q. Was it or not on account of your report, or what you had found in your previous examinations, or did not find for that matter?

A. It is my recollection that I was instructed to complete the work of examination between these astronomical monuments.

Q. Did you have occasion afterwards to make any further attempt at examination and identification of the Darling line?

A. (The witness hesitating a moment, stating:) Wait a minute, I want to find a date.

Q. All right?

A. In 1917, as I recall, the question arose on which line public [fol. 786] land surveys should be closed and I took up the matter with the commissioner of the general land office and was instructed to reestablish the Darling line in the general vicinity of Edith for the purpose of establishing a line on which surveys could be closed.

Q. Under these instructions what did you do?

A. I instructed William C. Perkins, United States Surveyor, to reestablish the Darling line thru ranges one, two, three, and four west of the New Mexico Principal Meridian, and eastward from range one, west to Ewell Canyon, and to continue from Darling's two hundred and sixth mile corner west to Ewell Canon, the ends of these two lines to be connected by an oblique line.

Q. You must have had at that time information that the two hundred and sixth mile corner was not on a line which continued from the place described, in your office?

A. I had that information.

Q. How did you learn that fact?

A. That information was gained thru examinations in 1900 and 1901 and by subsequent examinations in 1917.

Q. One of those lines coming from the east reached Ewell Canon at a point considerably south of the other line coming from the west?

A. Yes sir.

Q. What was the difference in chains or feet between the two lines?

A. As I recall about thirty chains in altitude.

Q. From your examination of Darling's notes can you explain to us how much—how many such discrepancies may have occurred; and if so, tell us?

A. There is nothing in Darling's notes to indicate that such a discrepancy existed. His notes show a continuous line from astronomical station number six west. I may say, however, that Darling's [fol. 787] line from astronomical station number six crosses the Conejos mountain range which is heavily timbered and covered with dense brush. The examination revealed the fact that his line was practically west in any bearing it had from astronomical station number six, which is near his one hundred and eighty-first mile corner, to his one hundred and ninety-sixth mile corner.

Q. From there how does it deflect?

A. That from there the line deflects to the south to his two hundred and first mile corner.

Q. How far to the south?

A. Eleven chains.

Q. From where?

A. From the two hundred and first mile corner the general bearing of the line is a little south of west.

Q. To where?

A. Until it reaches the marked stone previously referred to on the west bank of the Navajo river.

Q. As I recollect you have testified that east of that stone you did not find any mile corners for a considerable distance, I do not remember how far?

A. East of this stone no corners on the Darling line were found to the 206th mile corner.

Q. Have you reached that stone by a prolongation from the 206th mile corner?

A. Yes sir.

Q. How then did you discover this other line which you say was thirty-five chains in latitude north of the line where the 206th mile corner was?

A. By locating the approximate position of astronomical monument number seven by bearings according to the notes to the several mountain peaks; then by continuing westward and finding the 217th mile corner and 235th mile corner and astronomical monument number eight.

[fol. 788] Q. Was astronomical monument number seven east or west of the two hundred and sixth mile corner?

A. Westerly.

Q. Or thirty-five chains north from the prolongation of that line?

A. The approximate location of astronomical monument number seven, as I recall it, is a little more than thirty chains north of the prolongation of the line westerly from the two hundred and sixth mile corner, or close to thirty-five chains northeasterly from the marked stone on the bank of the Navajo river.

Q. Based on Darling's notes you assume what must have been done?

A. Darling, in his survey, made observations for latitude at intervals of about thirty miles along the line, and was supposed to connect his astronomical monuments by a continuous line. It appears, however, from the examinations made on the ground, that he made his observations for latitude on the bank of the Navajo river at the seventh astronomical station, and found that he was close to thirty chains south of the parallel. It then appears from the examination that he moved north from his point of observation a proper distance and easterly to a convenient place and there established astronomical station number seven; it then appears that he continued his line east to Ewell canon and then westerly on the parallel of latitude.

Q. After having corrected his location of monument number seven he went back eastwardly only as far as Ewell canon, but not far enough to make connection with monument number six?

A. Yes sir.

Q. In order to make a continuous correct line between monuments six and seven, he should have gone back as far as monument number six?

A. Yes sir. His failure to do that accounts for the jog or deviation or discrepancy found.

Q. Between points east and west of Ewell canon?

A. Yes sir.

[fol. 789] Q. What, if anything have you had to do with the Carpenter survey? Have you had anything to do with it officially?

A. I examined the Carpenter survey in the fall of 1903.

Q. Did that examination extend over the whole of his survey?

A. Yes, sir. But the line was examined in detail only at certain intervals, as to bearing and measurement, the correctness of corner monuments, and any other work required of him in his contract with the general land office.

Q. Was your examination sufficient to enable you to make a report as to the correctness of Mr. Carpenter's work?

A. Yes, sir.

Q. What in substance did you report as the result of your examination?

Mr. Ramsey: We wish to make objections to the questions and answers thereto upon the ground that the correctness or the incorrectness of the Carpenter survey is incompetent, irrelevant and immaterial, and no issue in this cause.

Examiner Luther: Answer the question?

Mr. Johnson: What was it?

(The examiner repeated the question last aforesaid.)

Mr. Johnson (continuing): I reported that the survey as executed by Carpenter was in general excellent work and that the work taken as a whole was of the highest order.

Mr. Clancy: Did you or did you not find that the line as surveyed by him connected with each of the eight astronomical monuments?

Mr. Johnson: Yes.

Q. As established by his astronomers?

A. Yes.

Q. Mr Johnson, in view of my ignorance of these technical subjects I will ask you if there is anything else that occurs to you, with your superior knowledge of these things, which would be of any importance to either side in this controversy—that you can tell us [fol. 790] about? We want anything of any assistance offered for the benefit of either side. Can you give us anything of any assistance or any value to either side? Can you give us anything that will shed any more light in this controversy, or which will be of any value to either side, whether covered by previous questions or not? I make this request to give anything you can in addition to what I have already asked you?

I think that you understand that from my point of view at least, the serious controversy here is,

"Whether the Darling survey or the Carpenter survey is the more accurate, as to the fixing on the earth's surface of the thirty-seventh parallel of latitude?"

With that statement I think that the early part of my question will be so limited that you will not be at a loss to answer it?

Within the limits of your knowledge tell us anything that would be of interest or that will shed light upon this controversy, as I view it?

A. The result of my examination of the line between Colorado and New Mexico has convinced me that both Darling and Carpenter determined the parallel of latitude in accordance with their instructions from the commissioner of the general land office as far as astronomical work is concerned. Darling made an error in running his line west from his one hundred and ninety-sixth mile corner. Had he properly established his line back from his seventh astronomical monument to his sixth astronomical monument, (which as I have said crosses an extremely rough and broken moun- [fol. 791] tainous country, the present controversy probably would not have arisen, but he threw the whole error practically at one place, thus causing a break in the line of such magnitude that it was impossible to close public surveys thereon with any degree of consistency.

The Carpenter survey was executed under a contract with the commissioner of the general land office and under special instructions. Carpenter made an excellent survey in accordance with his instructions and therefore complied with the terms of his contract.

Q. Have you formed any opinion or reached any conclusion as to which of these surveys more closely approximates the line of the thirty-seventh parallel of north latitude?

A. I have made no astronomical tests, no sir.

Q. That is not exactly my question, but rather as to whether you have formed any opinion as to which of the two lines more closely approximates the thirty-seventh parallel of latitude? The implication from your answer is that you have not formed such opinion or conclusion because astronomical tests would necessarily be the best basis for such an opinion?

A. Yes sir.
Q. And you have not made it?
A. No sir.
Q. Anything more you think of?
A. No.
Q. If not I think that is all I want to ask of Mr. Johnson.

Cross-examination by V. E. Keyes, Attorney General and counsel for defendant, the State of Colorado.

Q. As far as you know the stations set by Darling were correct?
A. Yes sir; as far as I know.
[fol. 792] Q. Is it not true, Mr. Johnson, that all public surveys in the vicinity of the thirty-seventh parallel north latitude, and between the one hundred and third and the one hundred and ninth meridians, are now closed on the Darling line?
A. Yes, sir, with one exception, range four, west of the New Mexico Principal Meridian, on which they were closed on the Carpenter line. But it is my recollection that these surveys were later made and changed to close on the established Darling line.
Q. Is it not true that for all administrative purposes the United States Land Office recognizes but one boundary line between New Mexico and Colorado, and that the boundary line is the so-called Darling line?
A. The general land office for administrative purposes recognizes the Darling line as the subsisting boundary line.
Q. Is there any other line recognized by the general land office as the subsisting boundary?
A. No, sir.
Q. Which of these lines was originally surveyed?
A. The Darling line.
Q. Is it not true that this original Darling line was approved by the general land office in the year 1869 and that ever since said time, said Darling line has been, and now is, the subsisting boundary between Colorado and New Mexico?
A. It is my understanding that the Darling line was accepted by the commissioner of the general land office shortly after its execution and has been used since as the boundary line between Colorado and New Mexico.
Q. That being true what was the boundary line recognized by the land office in the year 1876 when Colorado became a state?
A. At that time the general land office recognized the Darling line as the boundary between Colorado and New Mexico.
[fol. 793] Q. What was the line recognized by the United States Land Office as the subsisting boundary line between Colorado and New Mexico in the year 1912 when New Mexico was admitted into the Union of States?
A. The general land office in its administrative work has considered the Darling line at all times, with the exception mentioned, which has since been corrected, and recognized the Darling line as the boundary between the two jurisdictions.

Q. Is it not a fact that all of the public lands in the vicinity of the thirty-seventh parallel of latitude between Colorado and New Mexico has been patented by the United States?

A. I am not informed as to the extent of the dispositions of lands along the line; but the notes show that the two lines run very close to towns, and I can only assume land there, is patented land, and also in the valleys crossed by the line.

Q. Is it not true that the surveys for such patents as have been issued by the United States in the vicinity of the thirty-seventh parallel of latitude, between the one hundred and third and the one hundred and ninth meridians, have all been closed on the Darling line?

A. The official plats of record used as the basis for the disposition of the lands, considered the Darling line as the limiting boundary.

Q. That being true, the surveys of all lands patented by the United States in that vicinity would be closed on the Darling line?

A. If any lands have been patented along the line, the Darling line has been the limiting boundary.

[fol. 794] Q. Is it not true that in the fifty-three years that the Darling line has been recognized as the subsisting boundary between Colorado and New Mexico, that many private rights have attached, based upon the Darling survey?

A. I am not informed as to that.

Q. It is true, is it not, that the Darling line has been recognized as the subsisting boundary between Colorado and New Mexico for a period of fifty-three years?

A. Recognized by the general land office.

Q. And that if patents have been issued in the vicinity of such line the surveys for such patents have been closed on the Darling line?

A. Yes, sir.

Q. You may state whether or not, during the last fifty-three years political subdivisions, such as counties, school districts, municipalities and voting precincts, etc., in the vicinity of the thirty-seventh parallel of latitude, between Colorado and New Mexico, have been closed on the Darling survey?

A. I think that is true.

Q. Have political divisions in the territory mentioned—school districts, voting precincts, counties, and the like—been closed on any other line of survey, so far as you know?

A. Not to my knowledge, no sir.

Q. Do you understand that for many years last past the following in substance has been the rule and policy of the general land office of the United States, "Notwithstanding the different locations of the monuments which were supposed to have been established upon the thirty-seventh parallel of latitude, this office is of the opinion that for all administrative purposes the line established by E. N. Darling in 1868, wherever its location can be identified beyond a reasonable doubt, should be recognized as the boundary line."?

A. I understand that to be the policy of the general land office.

[fol. 795] Q. Do you understand this to be the policy of the gen-

eral land office, "When it is understood that an error of one second of arc of latitude is equivalent to an error of about 169 feet measured upon the earth's surface, no two independent establishments of a parallel of latitude can be in exact agreement."?

A. I have not qualified as an astronomical expert, but that is a matter within the general knowledge of the United States Land Office. The statement is true, unless the same stations are occupied in different observations.

Q. Astronomical stations?

A. Yes.

Q. Do you also understand this to be true and the rule of the general land office: "In conclusion it may be added that to reestablish the boundary at any other location excepting in its original position would cause complications and unduly disturb the legal titles to numerous parcels of land acquired in good faith."?

A. I understand that to be the conclusion of the general land office.

Q. Is it not a fact that the so-called line established by Carpenter was never officially adopted as the boundary line between New Mexico and Colorado, and that the action taken at the land office, in accepting the Carpenter survey, is to be interpreted merely as indicating that Surveyor Carpenter complied in full with all the terms of the contract entered into between him and the general land office of the United States?

A. It is my understanding that the Carpenter survey was accepted by the commissioner of the general land office and Carpenter was paid the amount due him under the contract for doing the work. I also understand that a joint resolution of congress declared the Carpenter line was the boundary line between Colorado and New Mexico, [fol. 796] but that this resolution was later vetoed by President Roosevelt.

Q. This being true is it not the attitude of the general land office that the Carpenter line was never approved by competent authority, and that therefore the Darling line is the subsisting boundary line between the states of New Mexico and Colorado?

A. It is my understanding that because of the presidential veto, the general land office held that the Darling line for administrative purposes is still the boundary between the two states or jurisdictions.

Q. In view of the fact that for a period of approximately fifty-three years the Darling line has been recognized as the subsisting boundary between Colorado and New Mexico, that all public surveys have been closed upon the Darling line, that surveys for patents, such as have been issued, have likewise been closed upon the Darling line, that surveys for all political subdivisions, such as school districts, voting precincts, towns and counties, have been closed upon the Darling line—that being true, would it not in your opinion "cause complications and unduly disturb the legal titles to numerous parcels of land acquired in good faith" to now substitute any other line for the Darling line?

A. I do not feel Mr. Keyes that I am competent to pass upon whether it would disturb titles or not in such event.

Q. What would be the effect upon the records of the general land office to substitute any other line for the Darling line which has been the subsisting boundary line between Colorado and New Mexico for a period of about fifty-three years?

A. If it should be decided that the Darling line is not the boundary between Colorado and New Mexico, in all probability the public land surveys would be closed on the new line, and the question of the titles to the lands affected would be passed upon by the de- [fol. 797] partment and the courts in my opinion.

Q. Would this require a change of all public surveys in the United States Land Office in the vicinity of the thirty-seventh parallel?

A. Yes, sir, to some extent; the public land surveys would be closed upon the new line.

Q. While at the present time and at all times during the last fifty-three years the public surveys have been closed on the Darling line?

A. Yes, sir.

Q. Go ahead Mr. Ramsey, if you have any questions.

Further cross-examination conducted by Wm. R. Ramsey, assistant attorney general and also of counsel for defendant, the State of Colorado:

Mr. Ramsey: All right. Is it not true Mr. Johnson that at the time that the Carpenter survey was made in 1902 the boundary line between Colorado and New Mexico was the Darling line?

Mr. Johnson: It was the line recognized by the general land office as the boundary line between the two states.

Q. Then at the time that Mr. Carpenter executed his resurvey instead of resurveying, and remarking, and reestablishing the original line, he made, determi[illegible] and fixed a new and independent line, did he not?

A. Mr. Carpenter made an independent resurvey based on astronomical observations—determinations.

[fol. 798] Q. Are you able to state with any degree of accuracy the variance in distance between the Carpenter line and the Darling line?

A. I have never compared the two lines with a view to determining that.

Q. Approximately is it not somewhere from a half a mile or more?

A. It is my recollection that the lines are coincident in places, and that the greatest variance is close to a half a mile.

Q. State whether or not it is true that the east corner established by Carpenter is a half mile or more north of the original corner established by Darling?

A. I remember that there is a material difference in latitude, but I do not remember the distance.

Q. Then if there is a difference in the eastern or southeastern corner of Colorado, which is now the common corner between Colo-

rado and Kansas, which would be the southwestern corner of Kansas, if the Carpenter line should be established as the true boundary, would not that affect the corner—the southwest corner of Kansas?

A. I think that would only be a question of law. I cannot see how it would affect Kansas in any way. I do not know what the calls for the southern boundary of Kansas are.

Q. If the southern boundary of Kansas should be the thirty-seventh parallel of latitude north, and the Darling line is correctly established that corner upon the thirty-seventh parallel of north latitude, then if it should appear that the thirty-seventh parallel of latitude would be further north, in Colorado, would not that also be further north in Kansas?

[fol. 798] A. It would be evident that the determination of the thirty-seventh parallel of latitude that you spoke of in Colorado would not be a continuous line across the south boundary of Kansas, but different methods may have been employed in the establishment of the two parallels.

Q. What would be the effect if the Carpenter line should be substituted in lieu of the Darling line as the boundary line between Colorado and New Mexico—I mean with respect to territory?

A. It is my recollection from looking at the maps, that New Mexico would get a little more territory than should it be along the Darling line.

Q. And consequently Colorado would lose some territory?

A. Yes sir, a scant bit.

Q. That strip extends clear across the entire extent of the state, does it not?

A. It is my recollection that the line is coincident towards the west end; also the difference from the Navajo river westward is probably not greater than ten chains.

Q. The distance of territory removed from Colorado would extend the entire length of the state, with the exception then of the points that are coincident that you have mentioned as being coincident?

A. I am not sufficiently informed on the subject, Mr. Ramsey, to say.

Q. Is it not true that such a change from the old line to the new line would necessitate changing in the boundary lines of six counties in Colorado and five counties in New Mexico?

A. I have never looked into that. We have nothing to do with the establishment of county boundaries at all.

[fol. 800] Q. If I understood your answers to counsel's questions, and as to one of the questions asked, you stated there had been a restoration survey made by William C. Perkins in the year 1917 under your directions?

A. Yes, sir.

Q. Then it is possible to restore the Darling line and it has been done?

A. About thirty miles of the Darling line in the general vicinity of Edith has been restored. It is my opinion that other portions of the line can be restored.

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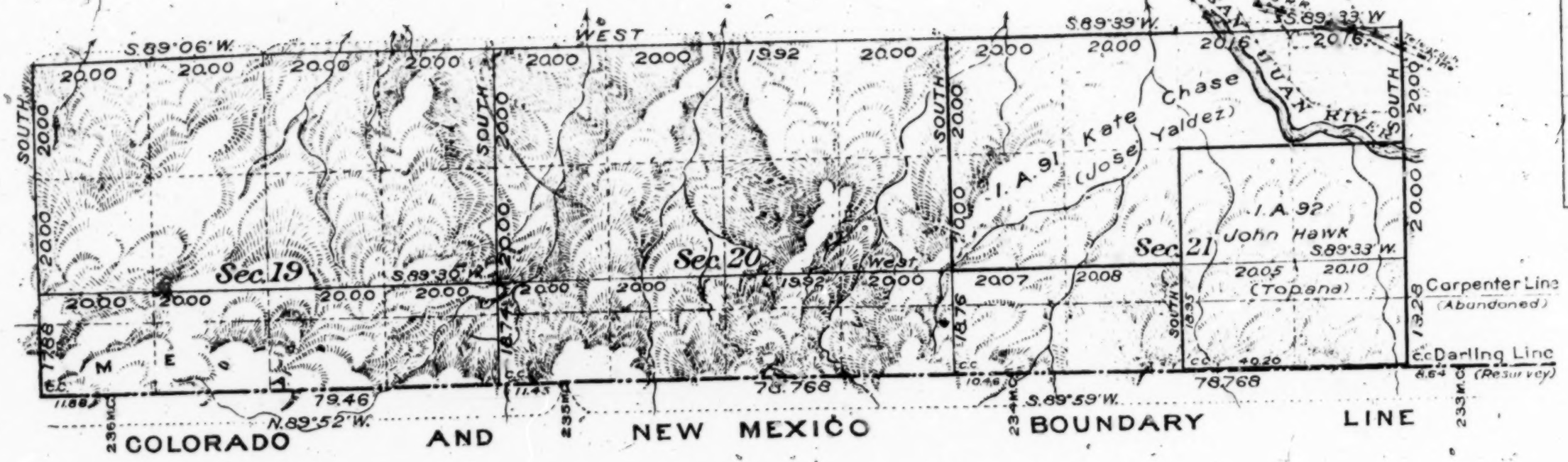

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TRACT NO.	SECTIONS	ENTRY and ENTRYMAN	ORIGINAL DESCRIPTION	ACRES
25	23-24	H.E.012601 Demetrio Madrid	Lots 2,3,4, Sec.10,T.32 N.,R.4W.(New Mexico)Pat.	155.09
26	23	H.E.012760 J. D. Sandoval	Lots 1,2,Sec.9,T.32N.,R. 4W.(New Mexico) Pat.	103.44
27	22-23	H.E.012188 Roque Gallegos	Lot 1,Sec.8,Lots 3,4 Sec 9,T.32N.,R.4W. (New Mexico) Pat.	155.20
28	24	H.E.012625 Antonio Naranjo	SE¼SE¼ Sec.10,Lot 4,SW¼ SW¼,Sec.11,NW¼NW¼,Sec. 14, T.32N., R.4W. (New Mexico) Pat.	171.49

	AREAS IN CONFLICT	
TRACT NO.	WITH ENTRY	ACRES
25	H.E.03189	9.88
"	I.A.87	37.40
"	I.A.88	23.71
26	I.A.72	36.87
"	I.A.87	9.79
27	I.A.72	10.32
"	I.A.130	13.41
"	I.A.153	23.88
"	I.A.174	23.72
28	H.E.1511	13.72
"	H.E.1528	9.92

PRICE 50 CENTS

30' 109° 30' 108° 30'

26 Miles from Wamsutter

Dad

S W E E T W A T E R

W Y O M I N G

C O L O R A D O

41°

D A G G E T T

Sparks

Ladore

Greystone

Sunbeam

Maybell

Dixon

Baggs

Savery

Slater

Snake

Great Divide

Fortification

Jackrabbit

Lay

CRAIG

DENVER

Juniper Springs

Cross Mountain

Lily

Knighall

Massadona

Caisson

Angora

Price Creek

Aerial

Mount Streeter

Hamilton

Pagoda

Cary Ranch

Thornburg

Morapos

VERNAL

Jensen

Green River

Yampa River

Little Snake River

Bear River

Williams Fork

Sand Creek

Spring Creek

Big Gulch

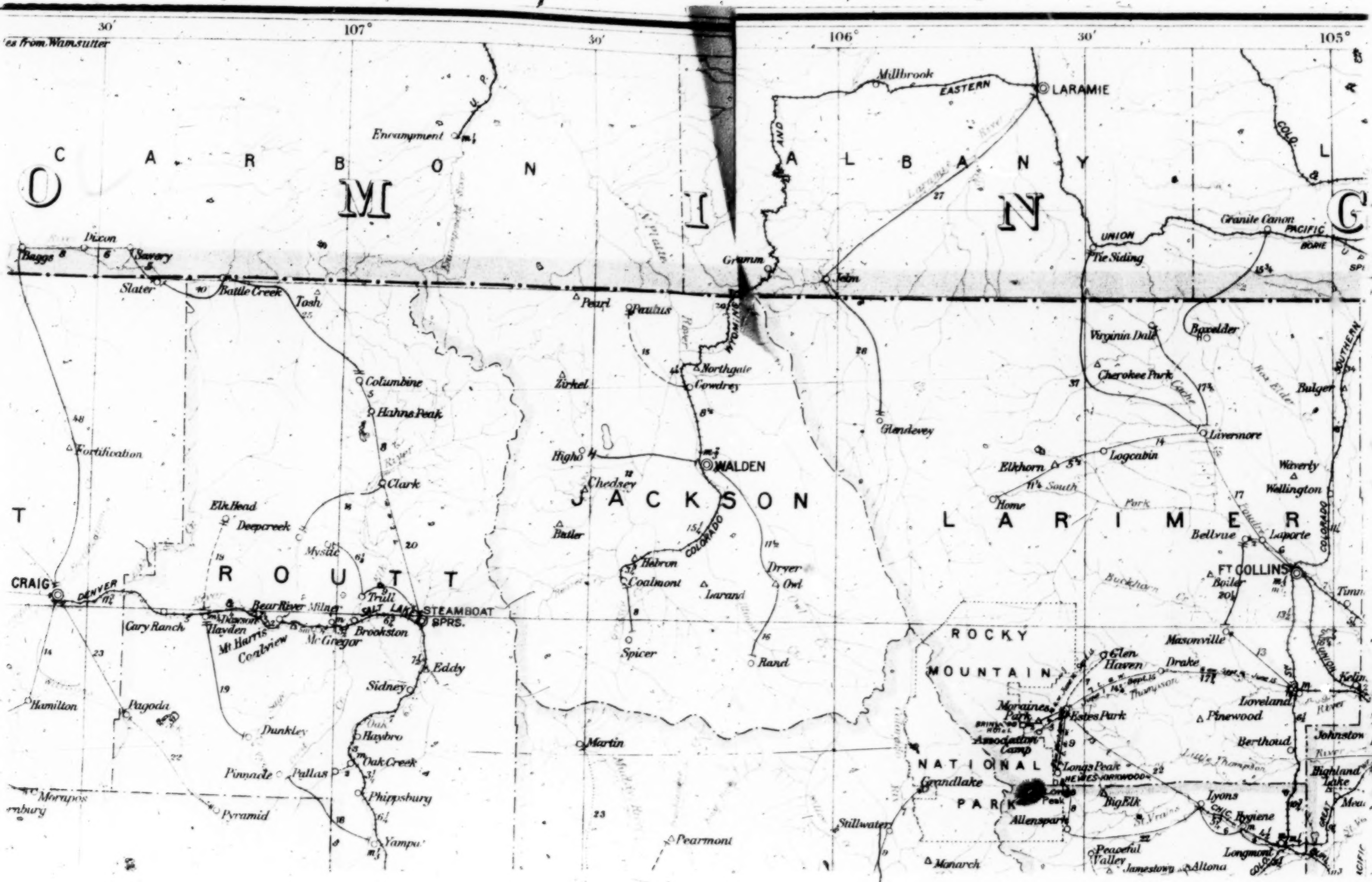
Coal Creek

Wilson Creek

Milk Creek

Willow Creek

T 11 N



30'
107°
30'
106°
30'
105°
es from Wamsutter
C A R B O N
A L B A N Y
L A R I M E R
J A C K S O N
R O U T T
ROCKY MOUNTAIN NATIONAL PARK
Millbrook
EASTERN
LARAMIE
Encampment
Granite Canon
PACIFIC
UNION
Tie Siding
Dixon
Baggs
Savery
Slater
Battle Creek
Tosh
Pearl
Paulus
Grumm
Jelm
Virginia Dale
Boxelder
Cherokee Park
Bulger
Columbine
Hahns Peak
Zirkel
Northgate
Cowdrey
Glendevey
Livermore
Logcabin
Elkhorn
Waverly
Wellington
Fortification
Clark
Higho
WALDEN
Chedsey
Home
Elk Head
Deepcreek
Butler
Bellvue
Laporte
Mystic
Hebron
Coalmont
Larand
Dryer
Owl
FT COLLINS
CRAIG
DENVER
Trull
Bear River
Milner
SALT LAKE
STEAMBOAT SPRS.
Cary Ranch
Hayden
Mt Harris
Coalview
McGregor
Brookston
Spicer
Rand
Eddy
Sidney
Masonville
Glen Haven
Drake
Hamilton
Pagoda
Dunkley
Haybro
Oak Creek
Pinnacle
Pallas
Phippsburg
Yampa
Morapos
Pyramid
Martin
Pearmont
Stillwater
Grandlake
Moraines Park
Estes Park
Loveland
Pinewood
Berthoud
Johnston
Highland Lake
Longs Peak
Allenspark
Big Elk
Lyons
Hygiene
Longmont
Peaceful Valley
Jamestown
Altona
Monarch
Buckhorn Cr
Little Thompson
Box Elder
Cache
South Fork
Poudre
Thompson
COLORADO
SOUTHERN
UNION
GREAT

30′ 105° 30′ 104° 30′ 103°

LARAMIE

CHEYENNE

KIMBALL

CHEYENNE

LARAMIE

WELD

MORGAN

LOGAN

BOULDER

LARIMER

LARAMIE

Granite Canon

Tie Siding

Virginia Dale

Boxelder

Cherokee Park

Livermore

Logcabin

Waverly

Wellington

Bellvue

Laporte

FT COLLINS

Timnath

Severance

Eaton

Windsor

Masonville

Glen Haven

Drake

Estes Park

Loveland

Pinewood

Berthoud

Johnstown

Milliken

Longs Peak

Lyons

Big Elk

Peaceful Valley

Jamestown

Altona

Greenbar

Boulder

Lafayette

Louisville

Superior

Marshall

Eldorado Springs

Rocky Flats

Golden

Arvada

Wheat Ridge

Denver

Littleton

Englewood

Sheridan

Bow Mar

Valley View

Morrison

Bear Creek

Lakewood

Dakin

Kassler

Highland Lake

Mead

Longmont

Firestone

Frederick

Dacono

Platteville

Gilcrest

LaSalle

Peckham

Evans

Kersey

Gill

GREELEY

Kelim

Koenig

Dover

Nunn

Pierce

Ault

Purcell

Camfield

Galeton

Cornish

Barnesville

Briggsdale

Fosston

Osgood

Coleman

Kenta

Buckingham

New Raymer

Willard

Stoneham

Atwood

Merino

Messex

Pawnee

Antelope Springs

Tipperary

Goodrich

Weldona

Orchard

Hardin

Masters

Vallery

Chapelton

Omar

Crest

Roggen

Wiggins

Snyder

Hillrose

Pinneo

Akron

Otis

Plainer

Padroni

Avalo

Kalaus

Grayin

Iliff

Proctor

Winston

Laura

Lorenzo

Sidney

Lodge Pole Creek

Pinebluff

Bushnell

Gifford

Armstrong

Spurgin

Graham

Kauffman

Carpenter

Hereford

Sligo

Grover

Gault

Cheyenne Junc.

Corlett

Speer

Borie

Boyer

Waitley

Burdett

Schlueter

Kelly

Leroy

Lucerne

Yuma

Kiowa

Elbert

Douglas

Arapahoe

Adams

Weld

Logan

Morgan

Washington

Phillips

Sedgwick

Yuma

Kit Carson

Cheyenne

Lincoln

Elbert

Douglas

Arapahoe

Adams

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Logan

Morgan

Washington

Phillips

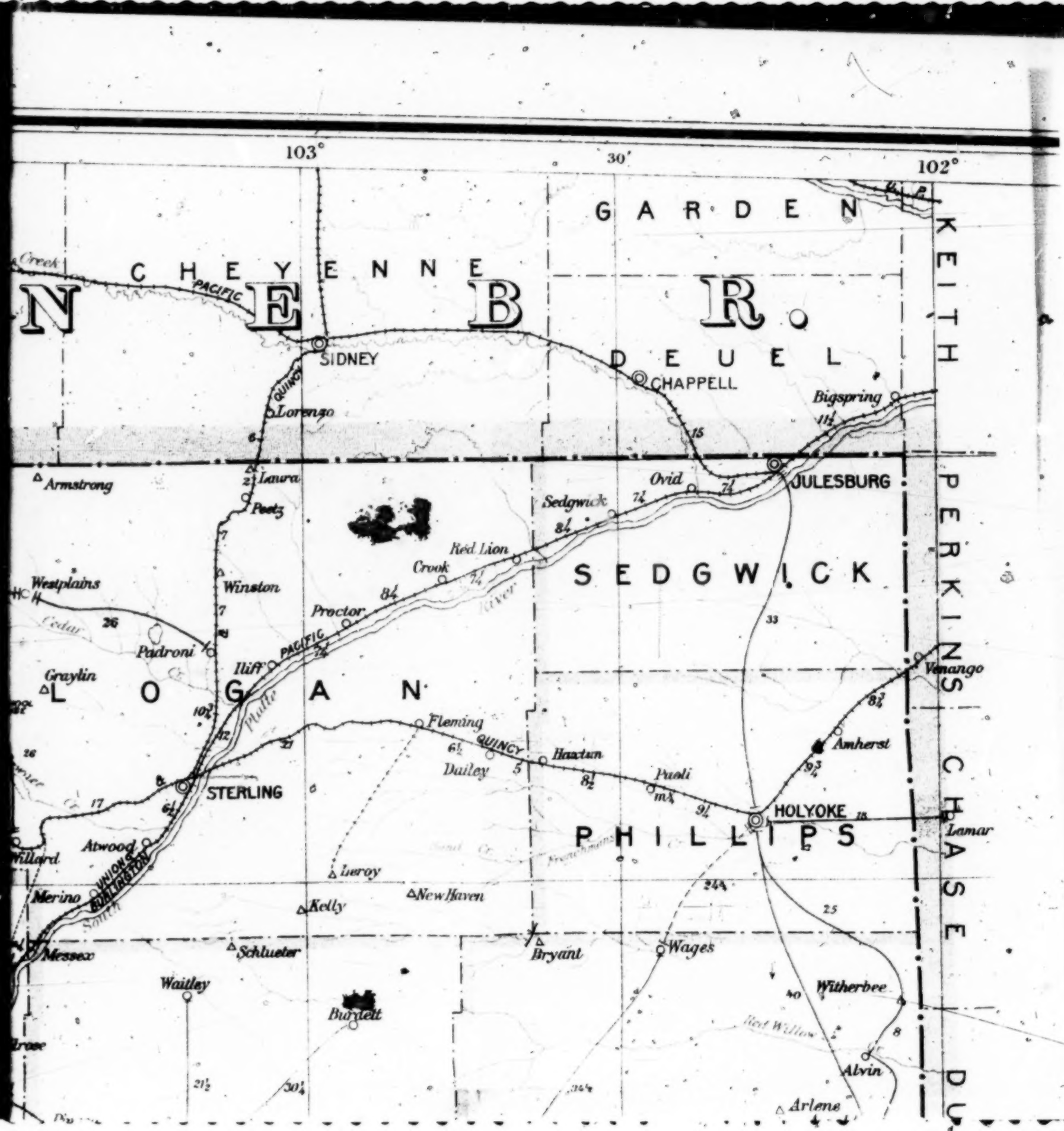
Sedgwick

Yuma

Kit Carson

Cheyenne

Lincoln


103°
30'
102°
GARDEN
KEITH
CHEYENNE
NEBR.
PACIFIC
SIDNEY
DEUEL
CHAPPELL
QUINCY
Lorenzo
Bigspring
Armstrong
Laura
JULESBURG
Ovid
Sedgwick
Peetz
Red Lion
Crook
SEDGWICK
Westplains
Winston
Proctor
Padroni
Iliff
Graylin
LOGAN
Venango
Fleming
Amherst
Haxtun
Dailey
Paoli
STERLING
HOLYOKE
PERKINS
CHASE
PHILLIPS
Lamar
Atwood
Willard
Leroy
Merino
UNION PACIFIC
BURLINGTON
Kelly
New Haven
Messex
Schlueter
Bryant
Wages
Witherbee
Waitley
Burdett
Alvin
Arlene

POST ROUTE MAP

OF THE STATE OF

COLORADO

SHOWING POST OFFICES

WITH THE INTERMEDIATE DISTANCES ON MAIL ROUTES

IN OPERATION ON THE 1st OF JANUARY, 1922

PUBLISHED BY ORDER OF

POSTMASTER GENERAL WILL H. HAYS

Statute Miles

10 5 0 10 20 30

Surveys Designated	By Whom Surveyed	Group No.	Group Date	Amount Ms.	Amount Chs.	Amount Lks.	When Surveyed Begun	When Surveyed Completed
East Boundary	Frederick C. Miller U.S.S.	Colo. 93	June 26, 1918	0	58	84	July 23, 1918	July 23, 1918
West Boundary	Frederick C. Miller U.S. Surveyor	N.M. 79	July 2, 1918	0	57	88	July 29, 1918	July 29, 1918
Portion of Subdivision				18	04	96	July 20 1918	August 2, 1918
Metes and Bounds				5	30	49	August 7, 1918	August 7, 1918
Connections				0	56	00		
Darling South Bdy of Colorado	William C. Perkins U.S.S.		April 27, 1917				1917	1917

This plat of the resurvey of South tier of Sections in Fractional Township No.32 North, Range No. 4 West of the New Mexico Principal Meridian delineates a retracement and reestablishment of the lines of the original survey as shown upon the plat approved Jan. 17, 1883 in their true original position according to the best available evidence of the position of the original corners; all differences between the measurements shown on the original plat and those derived in the retracement have been distributed proportionally between accepted corners in accordance with surveying rules; reference will be made to the original plat for the showing of the areas and more detailed descriptions of the various smaller subdivisions.

DEPARTMENT OF THE INTERIOR
GENERAL LAND OFFICE
Washington, D. C., Jan 20, 1922.
I hereby certify that this is a true copy of the plat of survey of the lands to which it relates, on file in this office.

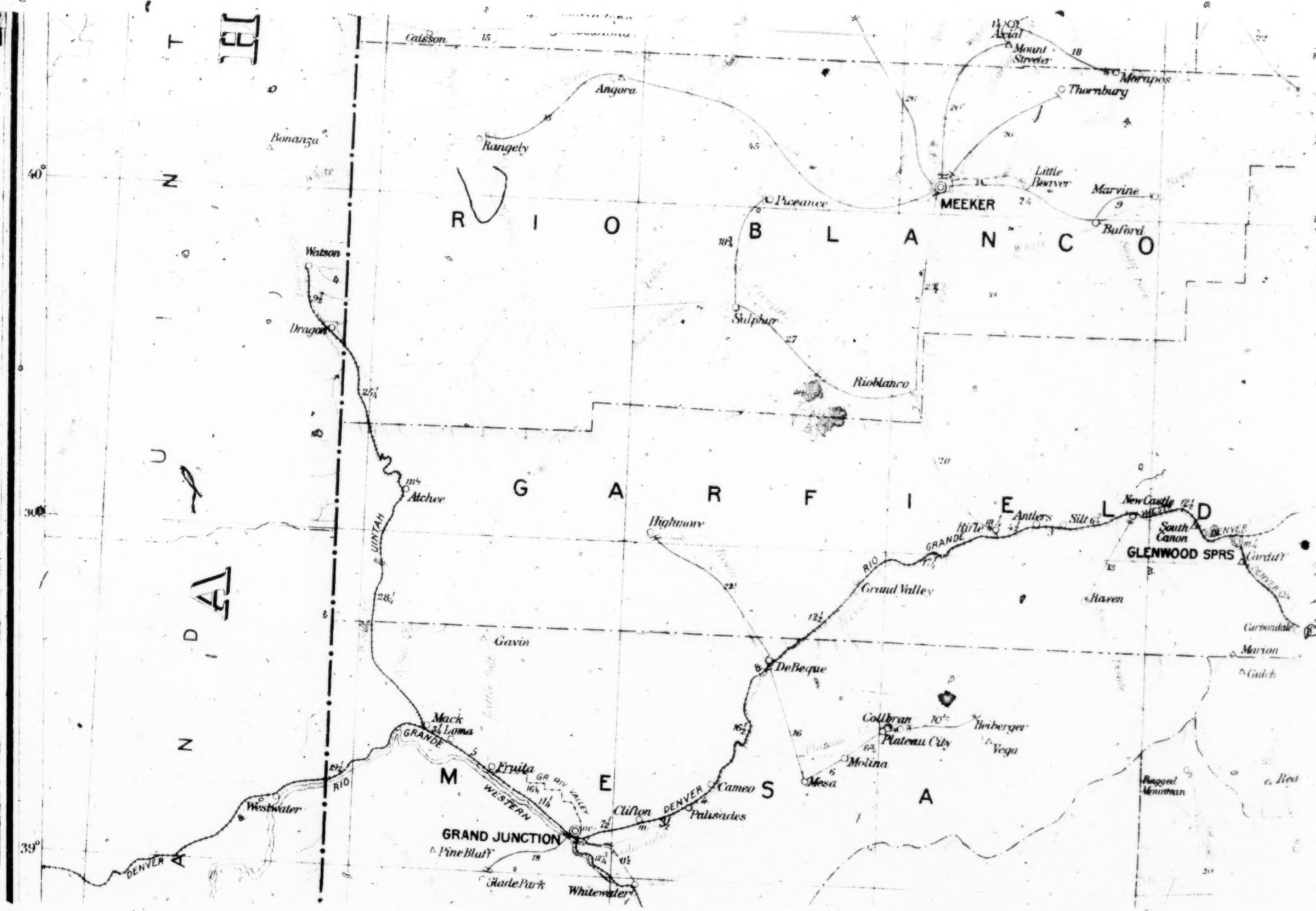
Geo. Williamson
Assistant Commissioner

The above Map of Resurvey of South tier of Sections in Fractional Township No. 32 North, Range No. 4 West of the New Mexico Principal Meridian, Colorado is strictly conformable to the field notes of the survey thereof on file in this office, which have been examined and approved.

U. S. SURVEYOR GENERAL'S OFFICE.

Denver, Colorado.
October 30, 1920.

John B. McGauran
Surv. Genl.



RIO BLANCO
GARFIELD
MESA
MEEKER
GLENWOOD SPRS
GRAND JUNCTION
Caisson
Angora
Rangely
Bonanza
Watson
Dragon
Piceance
Sulphur
Rioblanco
Axial
Mount Streeter
Morapos
Thornburg
Little Beaver
Marvine
Buford
Atchee
Highmore
Grand Valley
Rifle
Antlers
Silt
New Castle
South Canon
Cardiff
Raven
Carbondale
Marion
Gulch
Gavin
DeBeque
Collbran
Plateau City
Heiberger
Vega
Molina
Mesa
Cameo
Palisades
Clifton
Mack
Loma
Fruita
Westwater
Pine Bluff
Glade Park
Whitewater
Ragged Mountain
UINTAH
RIO GRANDE
WESTERN
DENVER
GR. RIV. VALLEY
40°
39°

Hamilton
Pagoda
Dinkley
Martin
Haybro
Oak Creek
Pinnacle
Pallas
Phippsburg
Morapos
Thornbury
Pyramid
Yampa
Pearmont
Toponas
Trublesome
Kremmling
DENVER
Parshall
HOT SULPHUR SPRS.
Granby
Stillwater
Elkdale
Tabernash
Marvine
Buford
Hydrate
Pershing
Radium
Scholl
McCoy
Sheephorn
Burns
State Bridge
Inlet
Eiland
Wolcott
Gypsum
Eagle
Edwards
Avon
Minturn
Gilman
REDCLIFF
Mtn. of the Holy Cross
Pando
Troutville
Tennessee Pass
Kokomo
Crawley
Buffer
Sunnyside
Warriman
LEADVILLE
Arkansas Junc.
Malta
Twin Lakes
Granite
Ashcroft
Castle Peak
Marble
Redstone
Ruggel Mountain
ASPEN
Snowmass
Woody Creek
Gerbazdale
Carbondale
Basalt
Seven Castles
Sloss
Bueli
Meredith
Thomasville
Norrie
Sellar
Nast
Ivanhoe
Marion
Gulch
New Castle
South Canon
GLENWOOD SPRS
Cardiff
Silt
Rifle
Rulison
Grand Valley
Parachute
Battlement Mesa
Debeque
Collbran
Mesa
Palisade
Clifton
Fruita
Grand Junction
Loma
Mack
Whitewater
Gateway
Uravan
Naturita
Nucla
Paradox
Bedrock
Dolores
Cortez
Mancos
Dove Creek
Pleasant View
Yellow Jacket
Delta
Hotchkiss
Crawford
Paonia
Somerset
Redvale
Austin
Olathe
Montrose
Ridgway
Ouray
Silverton
Lake City
Gunnison
Crested Butte
Almont
Tincup
Pitkin
Waunita Hot Spgs.
Parlin
Sargents
Doyleville
Howard
Salida
Poncha Springs
Maysville
Monarch
Garfield
Nathrop
Buena Vista
Johnson Village
Granite
Twin Lakes
Leadville
Malta
Arkansas Junc.
Wurtman
Tennessee Pass
Minturn
Redcliff
Gilman
Eagle
Avon
Edwards
Wolcott
Eiland
Gypsum
Eagle
Dillon
Frisco
Montezuma
Keystone
Tiger
Breckenridge
Alma
Fair Play
Garo
Buffalo Spgs.
Hartsel
Jefferson
Como
Cassells
Grant
Chase
Shawnee
Grousemont
Bailey
Cliff
Crossing
Estabrook
Insmont
Buffalo Creek
Pine
Eastonville
Longview
Critchell
Conifer
Brookvale
Evergreen
Starbuck
Mt. Morrison
Golden
Beaver Brook
Forest
Jeffers
Tarryall
Hayman
Westcreek
Woodlee Park
Deckers
Waldorf
Empire
Idaho Spgs.
Floyd Hill
Georgetown
Silver Plume
Lawson
Dumont
Bakerville
Berthoud Pass
Ridge
Porter Creek
Alice
Lombard
Bald Mountain
Blackhawk
Central City
James Peak
Tolland
Apex
Gilpin
Arrow
Ballinsville
Plainview
Broomfield
Caribou
Cardinal
Eldora
Pinecliffe
Crescent
Boulder Canyon
Lafayette
Louisville
Superior
Sunset
Ward
Goldhill
Salina
Jamestown
Altona
Peaceful Valley
Grandview
Longmont
Silwot
Lyons
Big Elk
Allenspark
Meeker Park
Longs Peak
Association Camp
Grandlake
Estes Park
Chic Hygiene
NATIONAL PARK
BOULDER
GILPIN
CLEAR CREEK
JEFFERSON
SUMMIT
EAGLE
PITKIN
LAKE
PARK
COLORADO

Evans
Kersey
Kuner
Hardin
Goodrich
Weldona
Snyder
Hillrose
Burdett
Johnstown
Milliken
La Salle
Peckham
Gilcrest
Highland Lake
Mead
Platteville
Gowanda
Vollmar
Firestone
Frederick
Dacono
St Vrains
Erie
Ft Lupton
Hudson
Keenesburgh
New Wattenberg
BRIGHTON
Bashor
Masters
Orchard
Valley
Brush
Chapelton
Omar
Crest
Wiggins
Raggen
Wachtel
Bijouview
Pinneo
Platner
Otis
Hyde
Yuma
Schra
QUINCY
AKRON
Gary
Boyd
Adena
Rago
Prairie
Brunker
Henry
Steffens
Heartstrong
Comanche
Woodrow
Elba
Abbott
Oleson
Eskdale
Dillingham
De Nova
Meekton
Harrisbury
Hughes
Swinford
Leader
Simpson
Plum Bush
Lindon
Anton
Arickaree
Spence
Cope
Joes
Fremont
Thurman
Flat Top
Glen
Shaw
Carey
Elphis
Wellons
Bovina
Arriba
Flagler
Vona
Seibert
Genoa
Saugus
Limon
Riverbend
Agate
Buick
Bland
Norton
Hargisville
Deertrail
Wolfcreek
Parker
Schley
Sedalia
Louviers
Strontia Spgs
South Platte
Hill Top
Franktown
CASTLE ROCK
Elizabeth
KIOWA
Larkspur
Cherry
Greenland
Palmer Lake
Monument
Eastonville
Fondis
Elbert
Ramah
Simla
Matheson
Resolis
HUGO
Owen
Laco
Bennett
Strasburg
Byers
Peoria
Watkins
Aurora
DENVER
Littleton
Englewood
Cherrelyn
Lorraine
Mt Logan
Barr Lake
Bastlake
Henderson
Derby
Westminster
Welby
Irondale
Todd Creek
Irving
Westcreek
Salem
Bijou Creek
Middle Bijou
South Fork
Arikaree River
Beaver Creek
Sand Creek
Hell Gate
Republican
Big Sandy
Rush Creek
Willow Creek
Spring Creek
Owl Creek
Prairie Dog Creek
Cherry Creek
Coal Creek
Plum Creek
Kiowa Creek
Running Creek
Bijou Creek
Middle Bijou
Deer Trail
Lowry
Buckley
Aurora
Watkins
Bennett
Strasburg
Byers
Peoria
Deertrail
Agate
Buick
Bland
Hargisville
Wolfcreek
Parker
Schley
Sedalia
Louviers
Hill Top
Franktown
CASTLE ROCK
Elizabeth
KIOWA
Elbert
Norton
Fondis
Ramah
Simla
Matheson
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Riverbend
Limon
Genoa
Bovina
Arriba
Saugus
Flagler
Vona
Seibert
HUGO
Owen
Laco
Flat Top
Glen
Shaw
Thurman
Fremont
Cope
Joes
Arickaree
Anton
Lindon
Spence
Plum Bush
Harrisbury
Meekton
Dillingham
De Nova
Hughes
Carey
Elphis
Wellons
Bovina
Arriba
Flagler
Vona
Seibert
Genoa
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Riverbend
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Palmer Lake
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Fondis
Ramah
Simla
Matheson
Resolis
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DENVER
Littleton
Englewood
Cherrelyn
Lorraine
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Barr Lake
Bastlake
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Irondale
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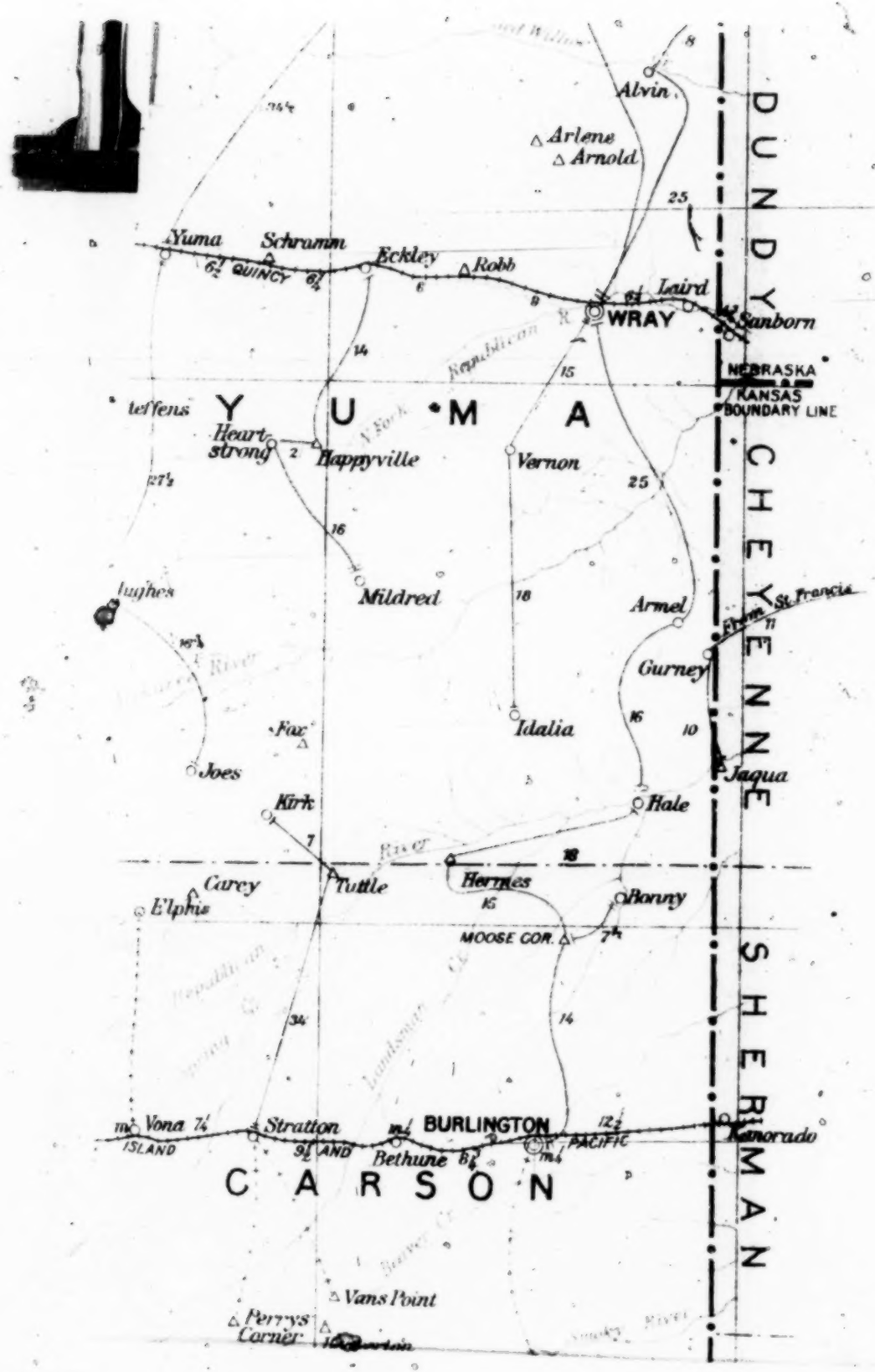
Peoria
Deertrail
Agate
Buick
Bland
Hargisville

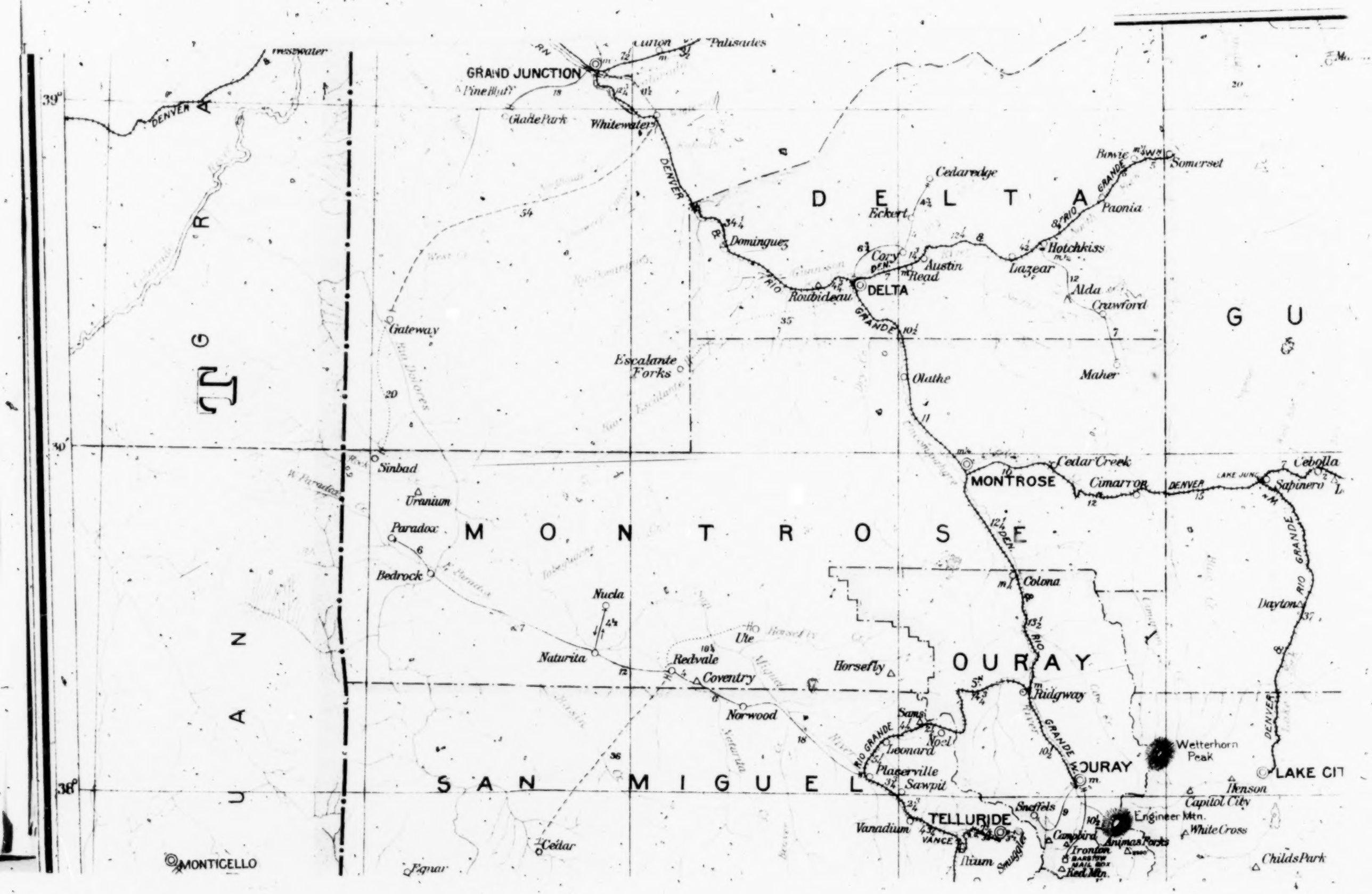


EXPLANATION

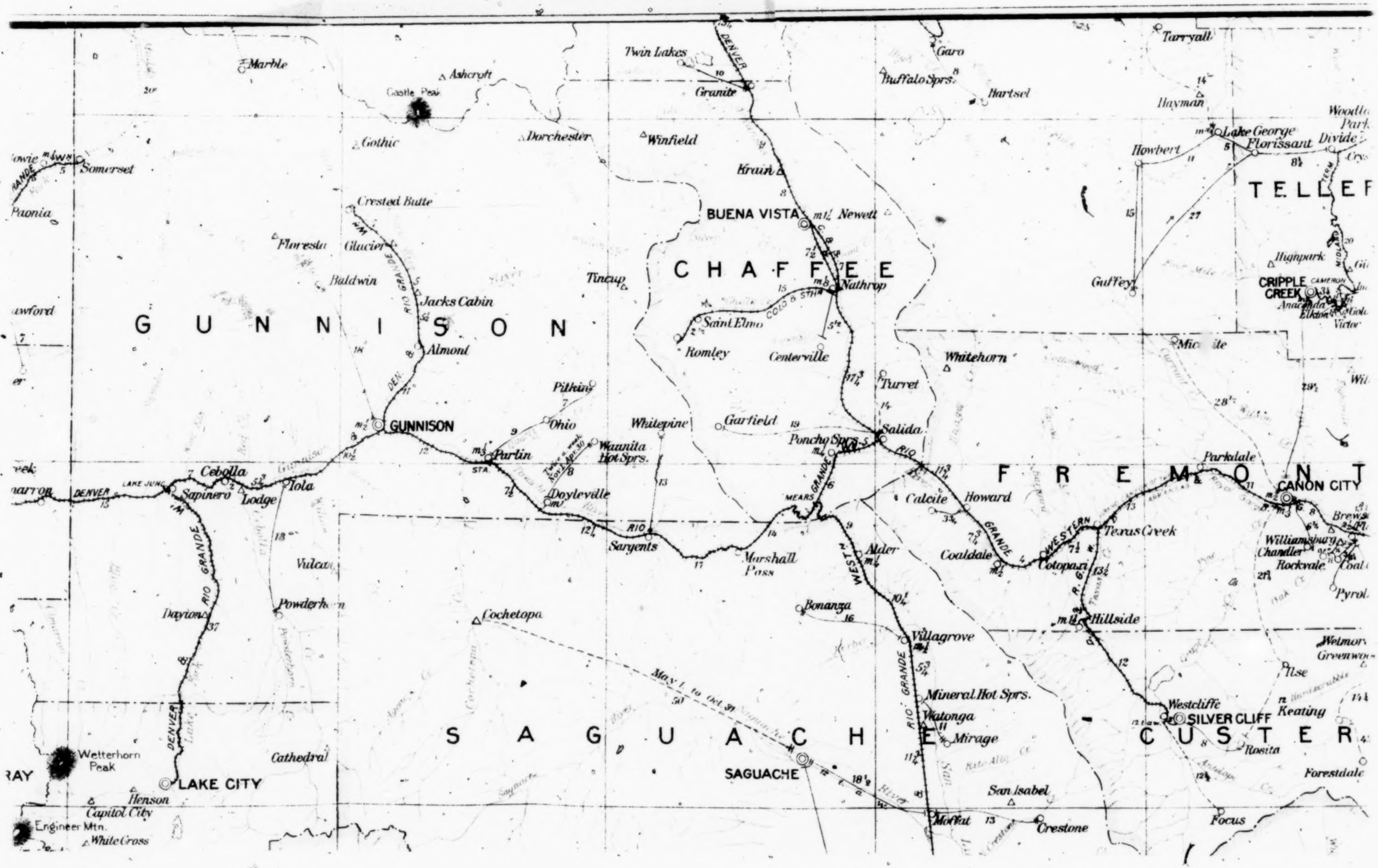
Post Office	Beginning of Route
Post Office, county seat	End of Route
Post Office, discontinued	Special Supply
No Post Office	Rural Delivery
Once a week	Mail Messenger
Twice a week	Railroad
Three times a week	Railroad Station
Six times a week	Electric Railroad

Stations of post offices are shown in parentheses.

LIST OF COUNTIES



GRAND JUNCTION
Palisades
Pine Bluff
Glade Park
Whitewater
DENVER
Dominguez
Roubideau
DELTA
Cedaredge
Eckert
Cory
Austin
Read
Lazear
Hotchkiss
Paonia
Bowie
Somerset
Alda
Crawford
Maher
Olathe
Gateway
Escalante Forks
Sinbad
Uranium
Paradox
Bedrock
Nucla
Naturita
Redvale
Coventry
Norwood
Ute
Horsefly
Cedar Creek
MONTROSE
Cimarron
Cebolla
Sapinero
Colona
Dayton
Ridgway
Sams
Noel
Leonard
Placerville
Sawpit
Vanadium
TELLURIDE
Ilium
Sneffels
Campbird
Ironton
Red Mtn.
Animas Forks
Engineer Mtn.
Wetterhorn Peak
Henson
Capitol City
White Cross
Childs Park
LAKE CIT
Cedar
Egnar
MONTICELLO
DELTA
MONTROSE
OURAY
SAN MIGUEL
UNCAN
GU
39°
38°



Marble
Ashcroft
Castle Peak
Twin Lakes
Granite
Garo
Buffalo Sprs.
Hartsel
Tarryall
Hayman
Lake George
Florissant
Divide
Howbert
Gothic
Dorchester
Winfield
Krain
Somerset
Paonia
Crested Butte
BUENA VISTA
Newett
TELLER
Floresta
Glacier
Baldwin
Tincup
CHAFFEE
Nathrop
Highpark
CRIPPLE CREEK
Guffey
Jacks Cabin
GUNNISON
Saint Elmo
Romley
Centerville
Almont
Whitehorn
Turret
Pitkin
Ohio
Whitepine
Garfield
Salida
GUNNISON
Parlin
Waunita Hot Sprs.
Poncho Sprs.
Parkdale
FREMONT
CANON CITY
Cebolla
Sapinero
Lodge
Iola
Doyleville
Calcite
Howard
Texas Creek
Sargents
Marshall Pass
Alder
Coaldale
Cotopaxi
Williamsburg
Chandler
Rockvale
Vulcan
Powderhorn
Dayton
Cochetopa
Bonanza
Hillside
Villagrove
Mineral Hot Sprs.
Watonga
Mirage
Westcliffe
SILVER CLIFF
Keating
Rosita
SAGUACHE
CUSTER
Wetterhorn Peak
Cathedral
LAKE CITY
Henson
Capitol City
Engineer Mtn.
White Cross
SAGUACHE
San Isabel
Moffat
Crestone
Focus
Forestdale
Ilse
DENVER
RIO GRANDE
WESTERN
MEARS
COLO & STHN
DEN. & RIO GRANDE

TELLER
EL PASO
LINCOLN
CHEYENNE
FREMONT
PUEBLO
CROWLEY
OTERO
KIOWA
BENT

Palmer Lake
Monument
Woodland Park
Divide
Husted
Woodmen
Eastonville
Peyton
Falcon
Ramah
Calhan
Keyser
Graceland
Kanza
Kutch
Benko
Clifford
Loco
Boyero
Aroya
Wild Horse
Amy
Wezel
Karval
Damascus
Swift
George
Florissant
Crystola
Green Mountain Falls
Cascade
Manitou
Pikeview
Curtis
Surber
Burt
Yoder
Amo
Ellicott
Wayne
Albano
Rush
Kendrick
Majors
Squirrel Creek
Dragoo
Hanover
Mc Collin
Girard
Forder
Cowans
Green Knoll
Cart Crossing
Galatea
Haswell
Pikes Pk. 14109
Halfway
COLORADO SPRS.
West End (Sta.)
Kelker
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Highpark
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Independence
Anaconda
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Rosemont
Fountain
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Wilbur
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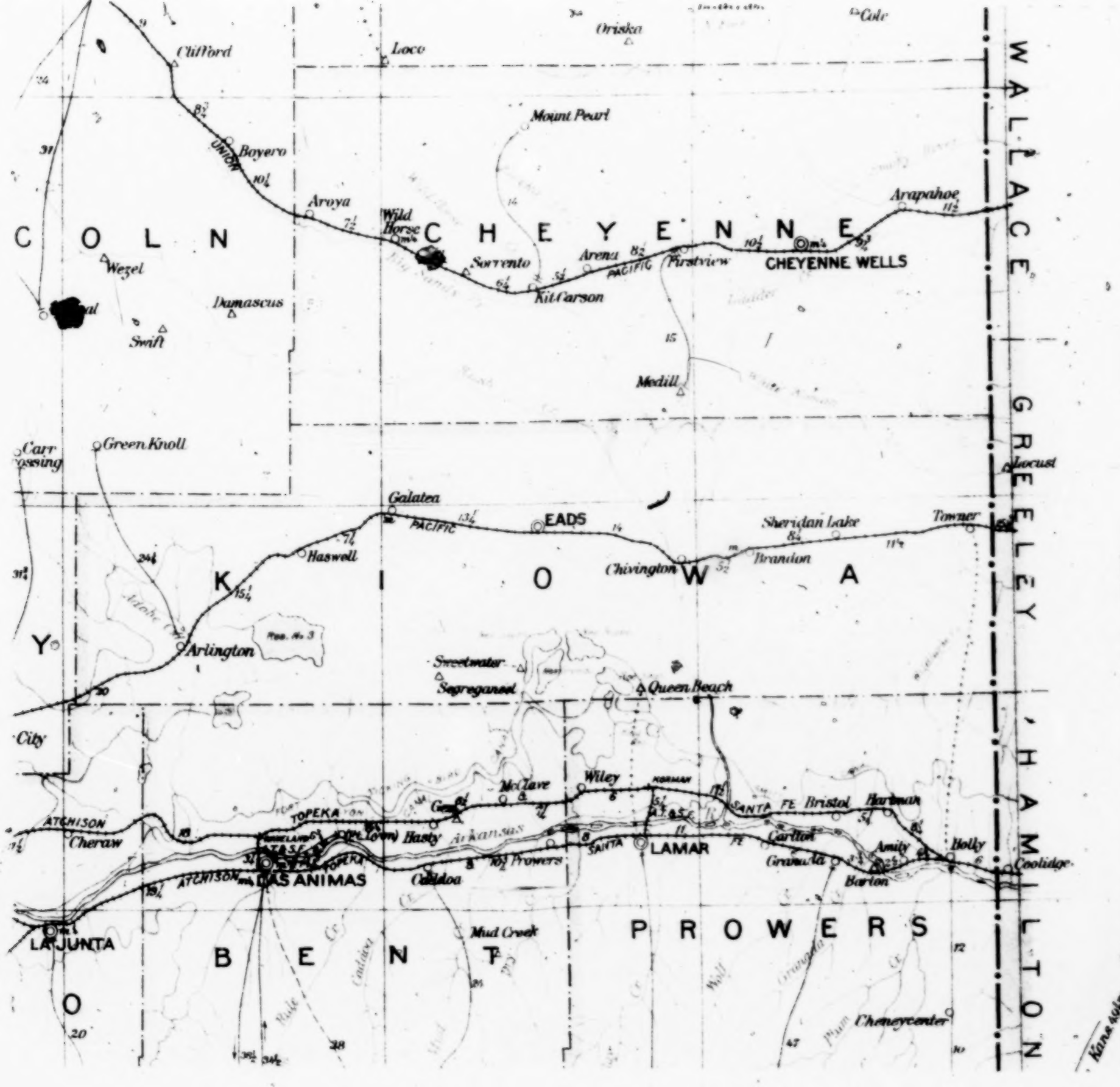
Bardeen
Wigwam
Pinon
BRADDON
Myrtle
Stone City
Penrose
Brewster
Florence
Concrete
Williamsburg
Chandler
Rockvale
Coal Creek
Portland
Pyrolite
Swallows
Tacony
Arlington
Sweetwater
Segregan
CANON CITY
Welmore
Greenwood
Ilse
Keating
Rosita
Forestdale
Siloam
Bronquist
Cousin Spgs.
Rock Creek
Goodpasture
Beulah
Burnt Mill
Sitton
Fairview
Rye
Graneros
Greenhorn
Mustang
Lime
Verde
Murrel
Abbey
Cedarwood
Wilson
Undercliffe
Grimaldi
Waremart
PUEBLO
North Avondale
Avondale
Boone
Nepesta
ORDWAY
Crowley
Sugar City
Olney Spgs.
Fowler
Manzanola
Vroman
Rocky Ford
Swink
Cheraw
Hasty
Caddoa
LAS ANIMAS
LA JUNTA
Rose
Sanford
Arkansas River
Black Squirrel Creek
Fountain Creek
Chico Creek
Rock Island
Big Sandy Creek
Caddoa River
Mustang
Timpas Creek
Apishapa River
Purgatoire River
Santa Fe
Missouri Pacific
Atchison Topeka
Colo. & So.
Rio Grande
Colo. - Kans.
Midland Terminal
Union Pacific
Pacific
Reed Cor.
Res. No. 3



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DAS ANIMAS
LA JUNTA
Mud Creek
B E N T
P R O W E R S
Cheneycenter
WALLACE
GREELEY
HAMILTON

730-731

IN

COLORADO

Showing the relative position of each County in the State.

Adams	N. E.
Alamosa	S.
Arapahoe	N. E.
Archuleta	S. W.
Baca	S. E.
Bent	S. E.
Boulder	N.
Chaffee	C.
Cheyenne	E.
Clear Creek	C.
Conejos	S.
Costilla	S.
Crowley	S. E.
Custer	S.
Delta	W.
Denver	C.
Dolores	S. W.
Douglas	C.
Eagle	C.
Elbert	E.
El Paso	C.
Fremont	C.
Garfield	W.
Gilpin	N.
Grand	N.
Gunnison	C.
Hinsdale	S. W.
Huerfano	S.
Jackson	N.
Jefferson	C.
Kiowa	E.
Kit Carson	E.
Lake	C.
La Plata	S. W.
Larimer	N.
Las Animas	S. E.
Lincoln	E.
Logan	N. E.
Mesa	W.
Mineral	S.
Moffat	N. W.
Montezuma	S. W.
Montrose	W.
Morgan	N. E.
Otero	S. E.
Ouray	S. W.
Park	C.
Phillips	N. E.
Pitkin	C.
Prowers	S. E.
Pueblo	S.
Rio Blanco	N. W.
Rio Grande	S.
Routt	N. W.
Saguache	S.
San Juan	S. W.
San Miguel	S. W.
Sedgwick	N. E.
Summit	C.
Teller	C.
Washington	N. E.
Weld	N. E.
Yuma	N. E.

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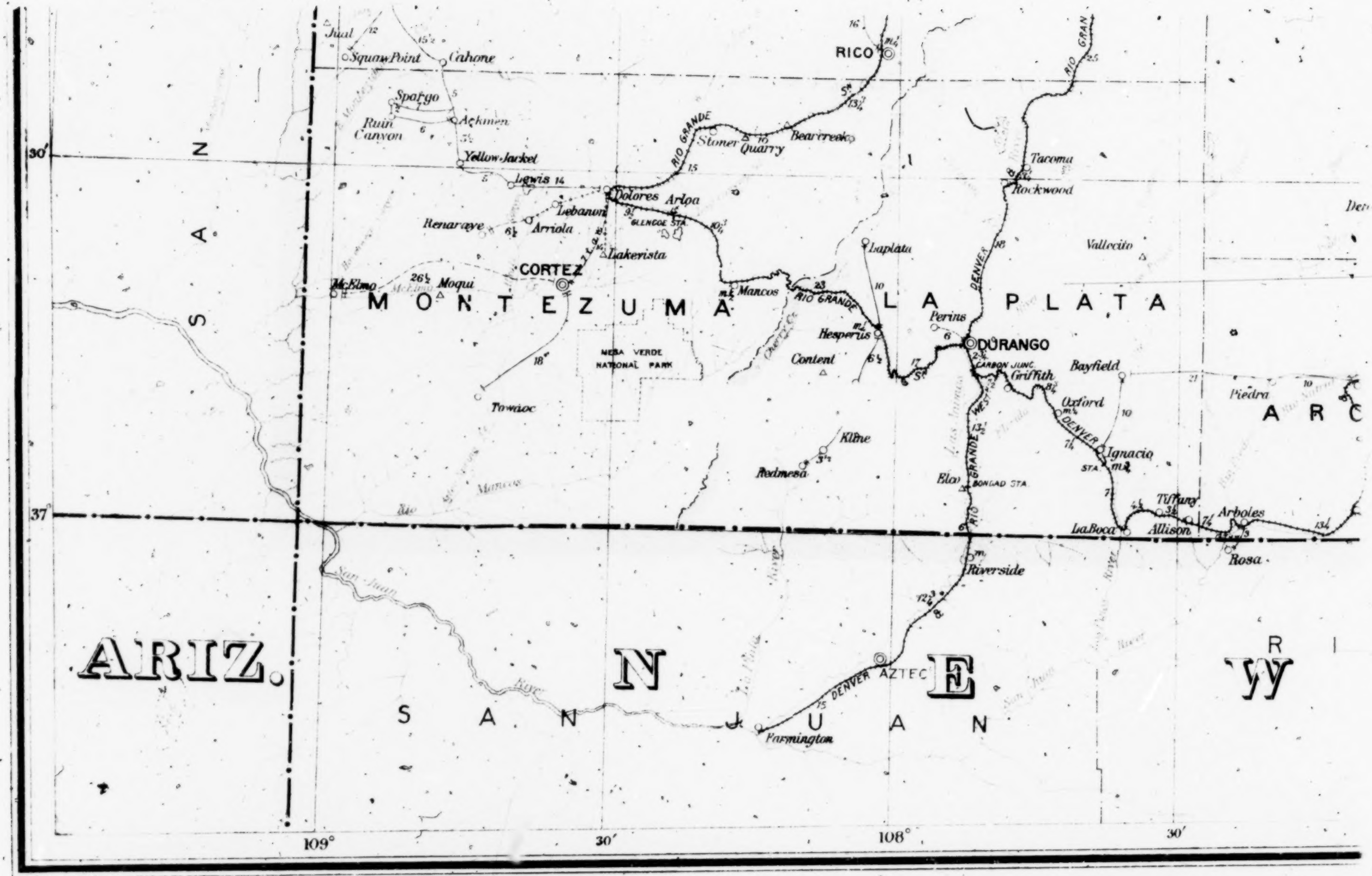

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Squaw Point
Cahone
Spargo
Ruin Canyon
Ackmen
Yellow Jacket
Lewis
Renaraye
Arriola
Lebanon
Dolores
Arloa
Lakevista
Stoner
Quarry
Bearcreek
Mancos
Hesperus
Content
Laplata
Perins
Tacoma
Rockwood
Vallecito
Griffith
Bayfield
Oxford
Ignacio
Tiffany
Arboles
Allison
La Boca
Rosa
Elco
Riverside
Farmington
Kline
Redmesa
Towaoc
McElmo
Moqui
MESA VERDE NATIONAL PARK
RIO GRANDE
DENVER
RIO GRAN
CARBON JUNC.
BONDAD STA.
GLENCOE STA.
San Juan River
30′
37°
109°
30′
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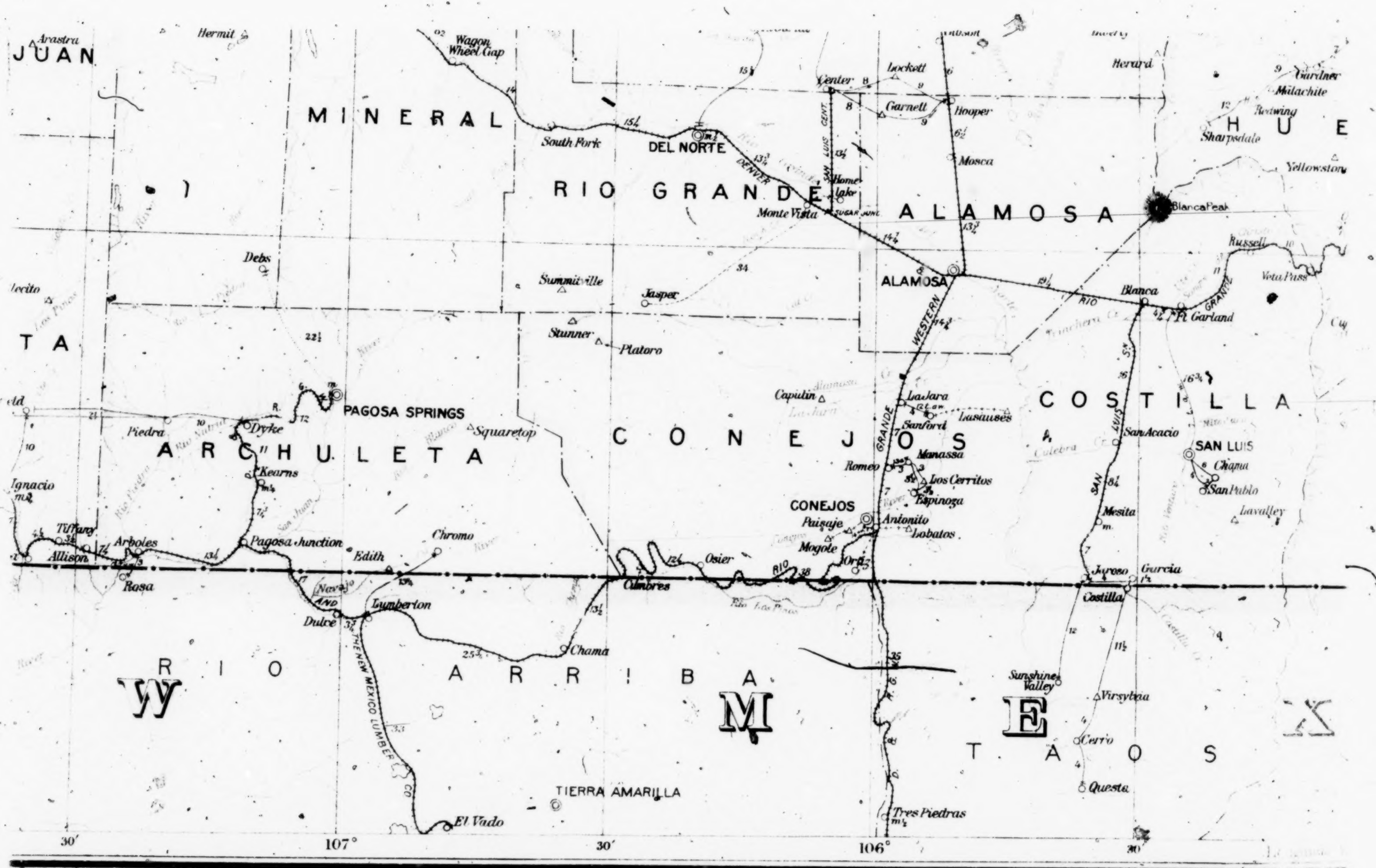

JUAN
MINERAL
RIO GRANDE
ALAMOSA
HUE
TA
ARCHULETA
CONEJOS
COSTILLA
RIO ARRIBA
TAOS
Arastra
Hermit
Wagon Wheel Gap
South Fork
DEL NORTE
Center
Lockett
Garnett
Hooper
Mosca
Herard
Gardner
Malachite
Redwing
Sharpsdale
Yellowstone
Blanca Peak
Home lake
Monte Vista
SUGAR JUNC.
DENVER
SAN LUIS CENT.
ALAMOSA
Russell
Veta Pass
Blanca
Ft Garland
RIO GRANDE
Debs
Summitville
Jasper
Stunner
Platoro
WESTERN
Capulin
La Jara
Sanford
Lasauses
Manassa
Romeo
Los Cerritos
Espinoza
CONEJOS
Paisaje
Antonito
Lobatos
Mogote
Ortiz
San Acacio
SAN LUIS
Chama
San Pablo
Lavalley
Mesita
Jaroso
Garcia
Costilla
Sunshine Valley
Virsylvia
Cerro
Questa
Tres Piedras
Osier
Cumbres
Chama
Lumberton
Dulce
Edith
Chromo
Pagosa Junction
Arboles
Rosa
Allison
Tiffany
Ignacio
Piedra
Dyke
Kearns
PAGOSA SPRINGS
Squaretop
Lecito
Los Pinos
Navajo
AND
THE NEW MEXICO LUMBER CO
TIERRA AMARILLA
El Vado
30′
107°
30′
106°
30′

HUERFANO

LAS ANIMAS

LA

LUIS

COLFAX

CONEJOS

Gardner
Malachite
Redwing
Strong
Delcarbon
Rouse
Camp Shumway
Maitland
Pictou
Toltec
WALSENBURG
Walsen
Solar
Farr
Ravenwood
North Veta
Ideal
Pryor
Lesten
Rouse
Rapson
Cedarhurst
Rugby
Brodhead
Higgins
Aguilar
Delagua
Gulnare
Hastings
Ludlow
Tabasco
Berwind
Tollerburg
Majestic
Valorso
Forbes
Bowen
Boncarbo
TRINIDAD
Primero
Cokedale
Segundo
Valdez
Madrid
Starkville
Engleburg
Grayscreek
Barela
Stonewall
Vigil
Weston
Torres
Tercio
Morley
Wootton
Sugarite
Yankee
CARISBROOKE
RATON
DILLON
CLIFTON HOUSE
Vermejo Park
Dawson
Rattlesnake Buttes
Clanda
Patches
Cucharas
Spanish Peaks
Pauley
Vega Ranch
Yetta
Model
Bart
Hoehne
Alfalfa
Mesaview
Yachita
Tobe
Alcreek
Laub
Trinchera
Watervale
Folsom
N. Des Moines
Mindeman
Ayer
Bloom
Delhi
Thatcher
Wormington
Stage Cun on
Higbee
Opal
Vinaview
Harbourdale
Kazan
Omine
Irwin Cannon
Kant
Yeiser
Hoopup
Officer
Edenview
Patt
Buster
Flues
Villegreen
Plum Valley
Kim
Andria
Utleyville
Druce
Dalerose
Troy
Esteden
Carrizo
Lone Oak
Branson
Bintery Gap
Ojo
Oakview
Russell
Veta Pass
LaVeta
Cucharas Camps
Dean
Hicks
Link
Stamford
Lavalley
Pablo
Cucharas
Denver
Colo. & Denver
Huerfano River
Cuchara
Spanish
Ute
Van Bremer
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Rio Vermejo
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Longitude West 105° from Greenwich
30'
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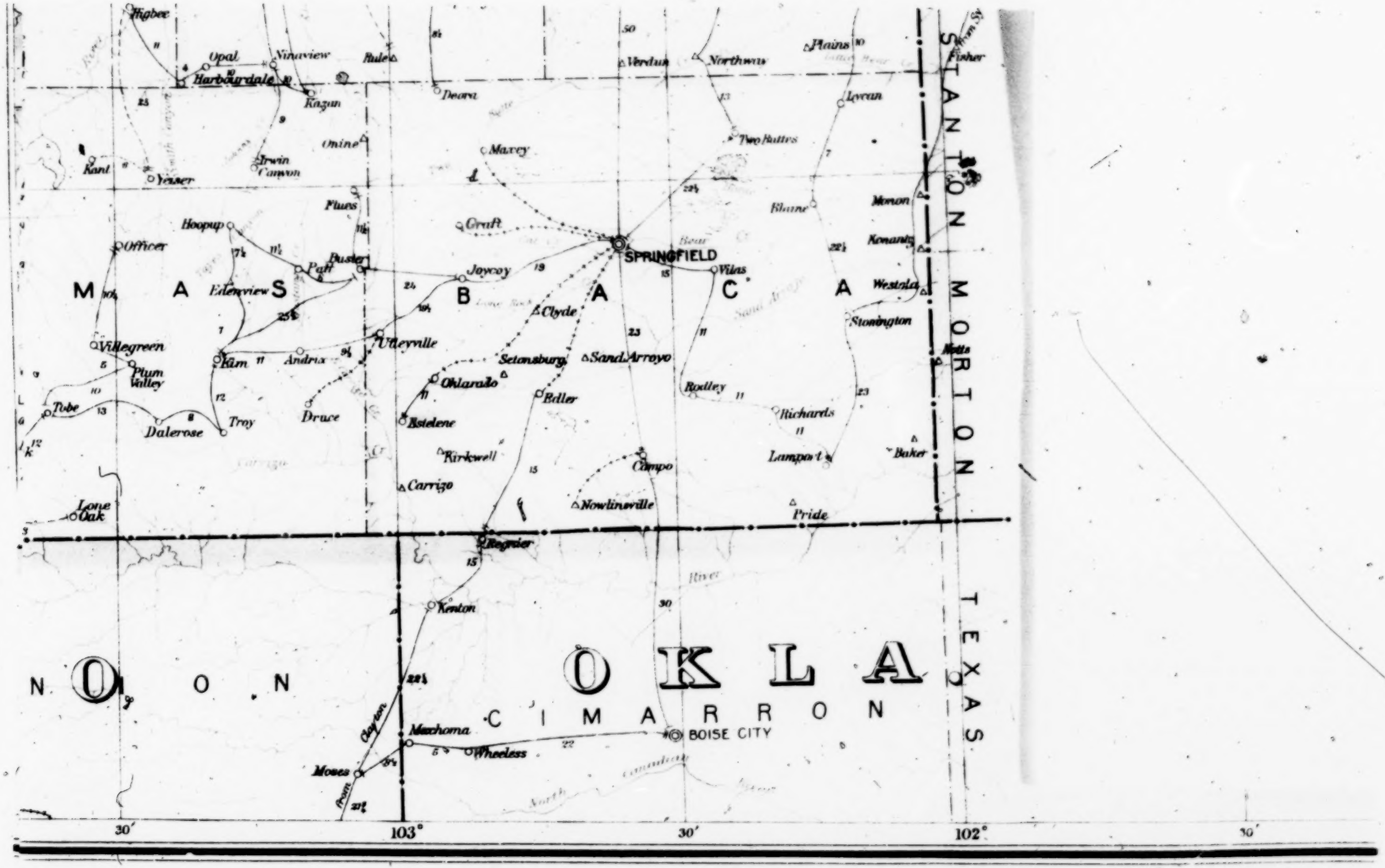

Higbee
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Harbourdale
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Fisher
Lycan
Two Buttes
Onine
Maxey
Kant
Yeiser
Irwin Canyon
Flues
Graft
Blaine
Monon
Konanty
Hoopup
Officer
Buster
Pall
Joycoy
SPRINGFIELD
Vilas
Westola
M A S B A C A
Edenview
Clyde
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Plum Valley
Kim
Andrix
Utleyville
Setonsburg
Sand Arroyo
Notts
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Kirkwell
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Carrizo
Nowlinsville
Pride
Lone Oak
Regnier
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Clayton
Mexhoma
Wheeless
BOISE CITY
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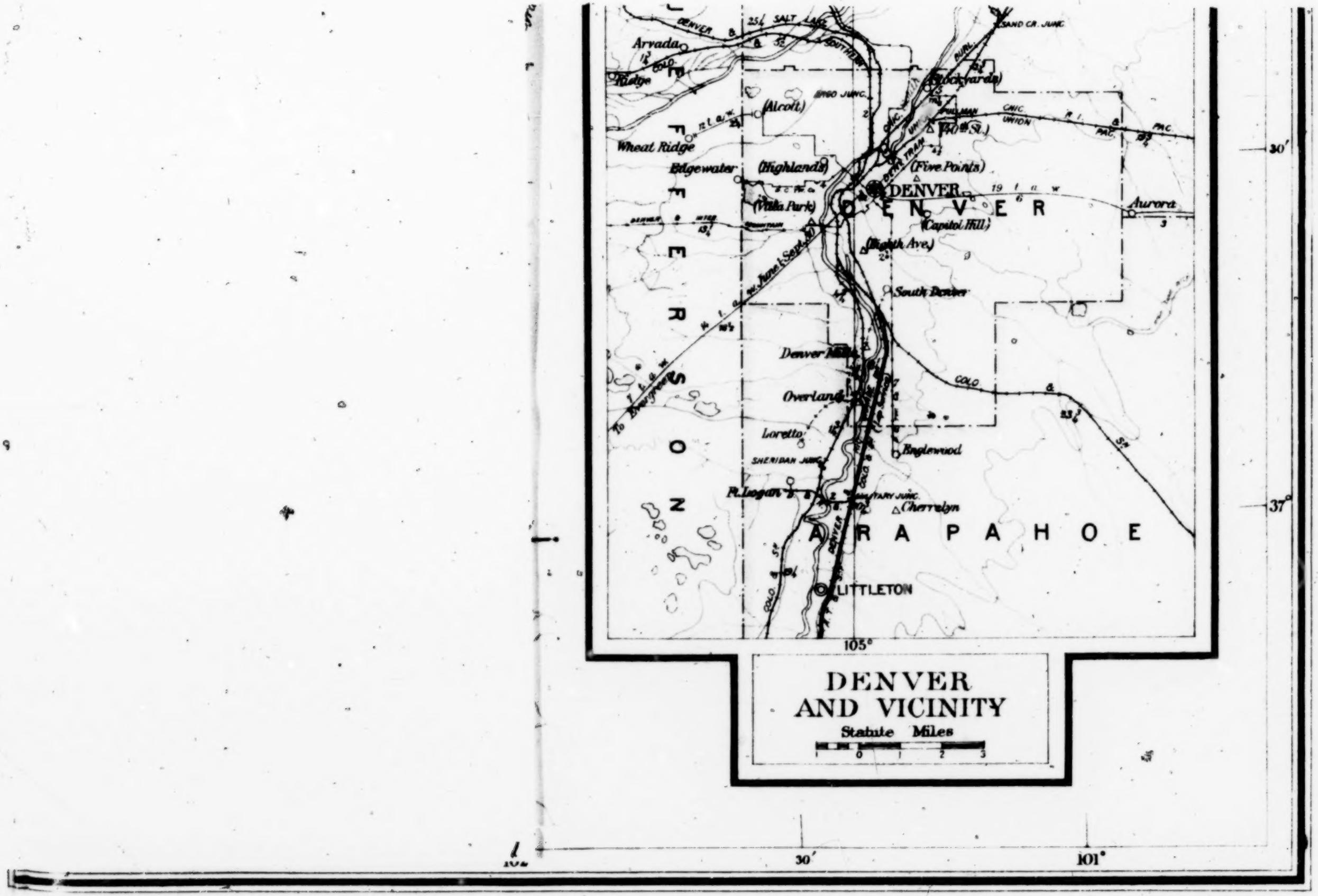
DENVER
AND VICINITY
Statute Miles
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DENVER
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Ridge
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Edgewater
(Alcott)
(Highlands)
(Villa Park)
(Stockyards)
(Five Points)
(Capitol Hill)
(Eighth Ave.)
South Denver
Denver Mills
Overland
Loretto
Englewood
Ft. Logan
Cherrelyn
LITTLETON
Aurora
ARAPAHOE
DENVER
SAND CR. JUNC.
ARGO JUNC.
SHERIDAN JUNC.
105°
101°
30′
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Colorado

Q. Was the Darling line recognized as the boundary line of Colorado between Colorado and New Mexico during the time that they were both territories and after the Darling survey was approved and accepted by the general land office up to the time that each of these two territories were admitted into the Union as states?

A. I am not familiar with the New Mexico boundary calls, or the boundaries under which it was admitted as a state.

Q. To make it a little clearer my question is this: Assuming that New Mexico was organized as a territory in 1850 and that Colorado was organized as a territory in 1861, then at the time the Darling survey was executed and the Darling established in 1868, both New Mexico and Colorado were territories, were they not?

A. Yes sir.

Q. Under the jurisdiction of the United States?

A. Yes sir.

Q. Then while both New Mexico and Colorado were respectively under the jurisdiction of the United States, the government of the United States, thru its land office, recognized the Darling line as the boundary line?

A. Yes sir.

Q. And continued to?

A. Yes sir.

Q. And then at the time that Colorado was admitted as a state into the Union of states August 1, 1876, the Darling line was still [fol. 801] recognized as the boundary line between Colorado and New Mexico territory was it not?

A. Yes sir.

Q. Then if New Mexico was admitted as a state into the Union of states on January 6, 1912, the Darling line was recognized and accepted at that time by the general governmental authorities and thru its land office as the boundary line between the two states, was it not?

A. From the point of view of the general land office, I would say it was, yes sir.

Q. You have stated that a resolution was introduced in Congress in effect confirming the Carpenter survey and that said resolution was vetoed by President Roosevelt, then the effect of that action, was it not, that the Congress of the United States, failed, refused and declined to recognize the Carpenter survey for any purpose whatsoever?

Mr. Clancy: I object to that question as calling for a conclusion of law and for no statement of fact. We have the resolution and veto message already in the record.

Examiner Luther: Answer the question.

Mr. Johnson: It is my understanding that Congress took no further action in the matter.

Mr. Ramsey: Then at that time there was no other boundary line existing between Colorado and New Mexico, than the Darling line, was there?

Mr. Johnson: As far as the general land office was concerned, the Darling line remained the subsisting boundary between Colorado and New Mexico.

Q. And is considered such today by the general land office, is it not?

A. That is my opinion.

Q. Have you a manual of the rules, Mr. Johnson?

A. Yes sir, I can produce them.

[fol. 802] (Thereupon Mr. Johnson procured the manual.)

Q. That's all. Anything more Mr. Keyes?

Mr. Keyes: That's all.

Mr. Ramsey: That's all.

Redirect examination by Frank W. Clancy, counsel for the State of New Mexico:

Q. There was an exception to the closing of the public land surveys on the Darling line in range four, west of the New Mexico Principal Meridian, where there were surveys made which closed on the Carpenter line. Were not those surveys which closed on the Carpenter line made before the action of Congress adopting the Carpenter line, vetoed by the president of the United States?

A. I rather think they were, yes sir.

Q. Were they not made to close on that line in pursuance of the specific instructions of the commissioner of the general land office?

A. Yes sir.

Q. Do you think, however, subsequently these surveys were made to close on the Darling line?

A. I am uncertain, but that is my recollection.

Q. These were New Mexico surveys?

A. Yes sir.

Q. If that was done it would be apparent from the records of the surveyor general in Santa Fe?

A. Yes.

Q. Is it not a fact that the Colorado closings in that township and range were upon neither the Carpenter or Darling line, but some imaginary line that was south of both lines?

A. It is my best recollection that is true, that the surveys closed on a theoretical line, so as to make surveys complete, or to make them consistent, with those east or west, in length, and other ways.

Mr. Ramsey: Are you done?

Mr. Clancy: That is all I will ask Mr. Johnson now; I think that I might have more questions to ask him in the morning. I have [fol. 803] some documentary evidence to put in but do not care to do so by piece-meal, so that I will leave that to be put in evidence at the time of our meeting in Sant. Fe, later on.

Mr. Ramsey: You have suggested that you will have some more evidence to put on in the morning?

Mr. Clancy: Possibly.

Mr. Keyes: We desire to introduce all of the records covering and including all United States patents issued and outstanding along the southern boundary line of Colorado, and as we shall desire to examine the records in order to prepare for the introduction of that evidence from the land office, on the floor below, which will take some little time, it is suggested that we adjourn until eleven o'clock tomorrow morning.

Examiner Luther: We will then take an adjournment until eleven o'clock tomorrow forenoon, Wednesday, July 19, 1922.

(4:10 p. m.)

Third Day, Wednesday, ~~19 July~~, A. D., 1922, proofs continued.

(11 a. m.)

Examiner Luther: Everybody concerned is present and we will proceed. Do you want to continue your inquiries Mr. Clancy?

Mr. Clancy: I have nothing just now. You may examine Mr Ramsey.

Recross-examination conducted by Mr. Wm. R. Ramsey, [fol. 804] Assistant Attorney General and also of Counsel for the Defendant, the State of Colorado.

Q. At the time you made your examination as heretofore stated of the Darling line, was it confined to certain portions of the line, or did it include the whole line?

A. It was confined to that portion of the line between astronomical monument number six and astronomical monument number eight.

Q. You testified yesterday that you found no corner on the Darling line between the two hundred and seventeenth and the two hundred and thirty-fifth mile corner.—Is it not a fact that Darling made long triangulations along this line and did not set any corners, except at great intervals.

A. That is true.

Q. You testified, in your examination of the Darling line, you found a number of original corners immediately west of astronomical monument number six; you testified did you not, or to that effect, that these corners that you found were in good alignment east and west, did you not?

A. Yes, they were in fair alignment with an east and west line, up to the one hundred and ninety-sixth mile corner.

Q. You testified also that you found a number of corners west of astronomical monument number six, up to the one hundred and ninety-sixth mile corner and that from there you found a decided deflection in the line, to the south, up to the two hundred and first mile corner; as I remember your testimony, that amounted to about eleven chains in latitude; and you testified that thereafter the whole line had a general bearing south of west to the Navajo river?

A. Yes sir.

[fol 8057] Q. Is it not a fact, then, that the jog found in the Darling line, is due to the deflections in the line between monuments number six and seven, rather than to misiocations in these astronomical monuments themselves?

A. The great part of the error in the line between astronomical monuments sixth and seventh is due to the fact that the line was deflected to the south from the one hundred and ninety-sixth mile corner.

Q. In other words, then, so far as you know, astronomical monuments number six and seven, and the other astronomical monuments along the line were properly established, and the error that you found, was due to error in connecting these astronomical monuments; is that correct?

A. I did not test the astronomical monuments of the Darling line for latitude, but it is true, that the examinations made by me on the ground, disclosed the fact, that the large error in the line is due to the fact that the line bears heavily to the south from the one hundred and ninety-sixth mile corner.

Q. So far as you have any knowledge, the astronomical stations you have referred to on the Darling line, are correct, are they not?

A. I have no means of knowing about their correctness in latitude.

Q. Well, at that time, had they ever been questioned as to their correctness?

A. Not that I know of, no sir.

Q. Even if these astronomical monuments had been properly connected the line would not have contained any special heavy bearings would it?

A. My examination developed the fact that astronomical monuments sixth and eighth, and the identified position of number seventh, were not greatly off a continuous line.

[fol 8058] Q. It then would have been a fairly correct continuous line, would it not?

A. As to bearings you mean?

Q. That is what I mean?

A. Yes sir.

Q. As a result of your several examinations in 1899, 1900 and 1901, did you recommend the establishment of a new, independent boundary line between Colorado and New Mexico, or did you make some other recommendations?

A. I suggested at that time the feasibility and desirability of restoring the Darling line, between astronomical stations six and eight, the only part of the line at that time in question.

Q. And it has since been done, has it not?

A. Yes, along a portion of this part of the line. As I stated yesterday restoration was made of the Darling line, along about thirty miles of the line, in the general vicinity of Edith.

Q. Are you able to state what methods were used by Darling, and what instruments were used by Darling, in executing the survey made by him, and in establishing the thirty-seventh parallel of north latitude, so far as the same constitutes the boundary line between

the state of Colorado and the state of New Mexico, and so far as it constituted the boundary line between the territories of Colorado and New Mexico?

A. I am unable to state, but that is all a matter of record.

Q. Is it not a fact that after the Darling line had been established as the northern boundary line of the territory of New Mexico and was duly adopted and ratified as the southern boundary of Colorado, that the same was accepted by the federal government in all particulars as the legal boundary between these two jurisdictions?

[fol. 807] A. I can only say that the survey was accepted by the commissioner of the general land office of the United States as the survey of the northern boundary of the territory of New Mexico.

Q. You have stated that you made your examinations of certain portions of the Darling line in 1899, 1900, and 1901. Is it not a fact that for a period of about thirty-one years, the position of the Darling line on the earth's surface, remained undisputed, and the correctness of its technical execution unquestioned?

A. As far as I know, no protests were made—not within my knowledge.

Q. Has not the general land office held in matters coming before it involving questions of jurisdiction, that aside from other considerations, the fact of the failure of confirmation of the Carpenter line, made in 1902 and 1903, eliminates it from consideration as the boundary line between these jurisdictions?

Mr. Clancy: I object to that question because it calls for a conclusion of law and for no statement of fact.

Mr. Johnson: Please read that question.

Examiner Luther: I will repeat it.

(Last above question of Mr. Ramsey repeated.)

Mr. Johnson: So far as I know that is true.

Mr. Ramsey: Are you able to state whether Darling executed his survey in accordance with the instructions given to him by the commissioner of the general land office and also in accordance with his contract with the United States government?

Mr. Johnson: I am not. I can only say that the survey was accepted.

Q. By whom?

A. By the commissioner of the general land office.

Mr. Clancy: We have that already in the record.

[fol. 808] Mr. Ramsey: Were not the instructions given to Carpenter as to making his resurvey rather unusual and contrary to the general rule governing resurveys?

Mr. Johnson: The instructions for surveys and resurveys issued by the general land office are based on the special acts authorizing the work. If congress directs an independent resurvey be made, special instructions must necessarily provide an independent resurvey.

Mr. Ramsey: However, if congress simply provides that there shall be a resurvey, remarking and reestablishment, what then, would you say?

Mr. Claney: I object to that as not being relevant to anything that is now in the record, or that can be in issue in this cause.

Mr. Johnson: The type of surveys in these instances or circumstances depend upon the interpretation put upon the acts by the general land office.

Mr. Ramsey: You mean the acts of congress authorizing the work?

Mr. Johnson: Yes sir.

Q. I am using the words resurvey, remark, and reestablish, because they are the words that are used in the acts of congress, and also the words that are used in the contract made by Mr. Carpenter with the United States?

A. I will ask the examiner to keep this off the record, please, while I make an explanation, and then I can answer.

(Here Mr. Johnson made some explanatory remarks that he specifically requested not placed in the record and they were not, therefore, taken down by the examiner.)

Mr. Claney: I want just what he said put in the record.

Mr. Ramsey: He has just stated to keep it out of the record.

Mr. Claney: But I am protesting because it is not in the record. [fol 569] Mr. Johnson: Will you please read the last question Mr. Examiner?

Examiner Luther: The last question by Mr. Ramsey was, "I am using the words resurvey, remark and reestablish, because they are the words that are used in the acts of congress, and also the words that are used in the contract made by Mr. Carpenter with the United States?"

Mr. Johnson: I am not sufficiently acquainted with the terms of the contract which Mr. Carpenter entered into with the general land office to answer that question.

Mr. Ramsey: You have stated that the Darling line was accepted by the commissioner of the general land office? Is that the usual and customary authority for accepting surveys made by the United States?

Mr. Johnson: That has been the custom in the survey of boundaries between the territories of the United States.

Q. On yesterday you stated the Carpenter line to be a well executed piece of work, and at that time, if I am not mistaken, you were United States Examiner of Surveys, were you not?

A. Yes sir.

Q. Although you were of the opinion that the Carpenter survey was a good piece of work, did you recommend—did you as examiner of surveys recommend its acceptance by the United States government as the boundary line?

Mr. Clancy: I think you asked Mr. Johnson that yesterday.

Mr. Ramsey: Not just in that way, I do not think Mr. Clancy.

Mr. Clancy: It would be out of Mr. Johnson's province to recommend anything as a boundary line.

Mr. Ramsey: Answer my question.

Mr. Johnson: As I recall it, I made no recommendations as to [fol. 810] whether the survey should be accepted or not.

Mr. Ramsey: As examiner of surveys what did you usually do in reference to the acceptance or rejection of any survey that was made under a contract with the government?

Mr. Johnson: It was the privilege of the examiner of surveys and I may say it was generally expected of him that he make recommendations based on his examination in the field as to the acceptability of the survey.

Q. Did you make an examination of the Carpenter line in the vicinity of astronomical station number five?

A. I did.

Q. How did you find the lines to the east and west of that monument, with reference to bearing?

A. I will look.

Mr. Clancy: You might indicate how far to the east and how far to the west, that is a pretty broad question.

Mr. Johnson: I will look that up and make a diagram of it during the noon hour.

Mr. Ramsey: I think we had better recess until 2 p. m.

Examiner Luther: We will recess until 2 p. m.

Afternoon Session, Third Day, July 19, 1922.

Examiner Luther: As all are present we will resume the taking of evidence. Mr. Johnson will resume the stand.

Mr. Ramsey: I wish Mr. Examiner you would repeat again on the record the last question I asked which Mr. Johnson was to look up and answer during the noon hour.

Mr. Examiner: The question you asked before luncheon was "How did you find the lines to the east and west of that monument, with reference to bearing?"

Mr. Ramsey: Yes. How did you find the lines?

Mr. Johnson: My examination determined the fact that those [fol. 811] various portions of the line tested between the fourth and fifth astronomical stations of the Carpenter line, had a bearing to the north of east, while those portions of the line tested between astronomical monuments numbers five and six had a general bearing to the south of east. It will be understood that I did not run over the entire line of the Carpenter survey. Tests were made only at regular intervals. The greatest difference in bearing according to Mr. Carpenter's and my findings is between the two hundred and fourth mile and astronomical monument number six. I find the average bearing between astronomical monuments five and six to be south eighty-nine degrees forty-nine minutes east. West from

astronomical monument five the bearing is about south, eighty-nine degrees, forty-eight minutes west. These bearings were tested several times. The tangent run by Carpenter between astronomical monuments five and six is north of the parallel or established line, and the cuttings west of astronomical station five are considerably south of the line. It would seem that astronomical station five is not on the parallel. By that I mean that astronomical station five would be north of a true line connecting astronomical monuments four and six.

Q. Would this not indicate then that astronomical monument five on the Carpenter line was some distance north of the monuments to the east and west thereof? A. It would.

Q. In other words at astronomical station five, there is an apex of what you might call, a broad triangle with astronomical monuments four and six, at the other two points of the triangle?

A. Yes sir.

Q. It would seem then that the Carpenter line at astronomical station five is some distance north of a line connecting astronomical stations four and six?

A. Yes sir.

[fol 812] Q. Are you able to state from your examination of the records how this departure from the true east and west line, compares with Darling's departure the true east and west line?

A. As I have stated I did not examine Carpenter's full line between astronomical stations four and six, and therefore it would not be possible to draw a comparison.

Q. Could you approximate it?

A. We could take an average of the bearings as found in the examination and compute the approximate distance astronomical station number five would be north of a true line connecting astronomical stations four and six.

Q. You have made no such examination and would be unable to approximate the distance?

A. No sir.

Q. You have made no such examination as would enable you to approximate it?

A. No sir.

Q. Would it take a great length of time to do that approximately: to determine it?

A. Not a great while.

Q. We would be glad to have that information, if possible?

A. I can do it.

Q. Will you please do so then?

A. (After witness had made computations called for) I have now made the computation, based on the average bearing of the lines examined and find that astronomical monument number five of the Carpenter survey is approximately fourteen chains north of a true line between astronomical stations numbered four and six.

Q. Is there any further statement in connection with this cause that you could make that would shed any light to us upon the subject?

A. What have you in mind Mr. Ramsey?

[fol. 813] Q. In reference to other monuments that you have mentioned, or not rather as to details; but I rather think your answers have covered about all I desire at this time?

A. I think so.

Mr. Claney: I suggest that he might make as a part of his answers to you the distance between four and five and from four to six.

Mr. Ramsey: All right.

Mr. Claney: State what is the distance from monument four to five and from monument five to six and the approximate total distance between four and six?

Mr. Ramsey: I think he might so state.

Mr. Johnson: The distance from astronomical station or monument number four to five of the Carpenter survey is practically forty-nine miles and from five to six is fifty-eight miles; therefore the whole distance between astronomical monument number four to astronomical monument number six is one hundred and seven miles.

Mr. Ramsey: Did the location of the corner of the Ute Indian Reservation, of which you have made mention, have anything to do, or have any connection with the Darling line, at all?

Mr. Johnson: It had nothing to do with the running of the Darling line.

Q. If I understood you correctly on yesterday you then stated that the survey made by Mr. Ober was rejected by you?

A. Yes sir.

Q. Was there any particular reason why you rejected it?

Mr. Claney: He told you that yesterday.

Mr. Johnson: Yes sir, on yesterday.

Mr. Ramsey: Why?

Mr. Johnson: Because it was faulty in execution and the public land lines were not properly closed thereon.

[fol. 814] Q. You referred on yesterday to one instance in which a township survey had been closed on the Carpenter line. As I recall your answer, I think that was in township thirty-two, range four west N. M. P. M. Is that correct?

A. Yes sir, township thirty-two north, range four west of the N. M. P. M.

Q. Is it not a fact that later that line which you have stated was closed on the Carpenter survey, or Carpenter line, was abandoned, and the line changed back within the Darling survey, or changed to the Darling line?

Mr. Claney: He testified about that yesterday, also. There is no need repeating.

Mr. Ramsey: He testified that the line was changed back, but I am putting this additional question, "Was not that Carpenter survey or that abandoned?"

Mr. Johnson: I do not recall that I testified the survey was changed; I think it was my recollection that it was changed. The records, however, of the survey are in the offices at Santa Fe, and it is my recollection that the Darling line was made the closing line later, in place of the Carpenter line.

Q. Is it not a fact that any two surveys made by different surveyors rarely ever agree in all particulars?

A. Of the same area?

Q. Yes sir?

A. They rarely agree in detail in all particulars.

Q. Is it not a fact that the accuracy of a survey depends largely upon the methods used, the kind of instruments and the care and pains with which the survey is executed?

A. Yes, and I may add, the skill of the surveyor.

[fol. 815] Q. In your observation and experience in your official capacity for years as supervisor of surveys, is it not a frequent occurrence that boundaries of states, and other boundaries, made in an early day, by cruder methods, and less modern instruments, would in many instances be changed by more modern methods and more improved instruments; is that correct?

A. The surveying organization of which I have had charge has frequent occasion to close on state boundary lines, and it has found these boundary lines in places to be defective, according to modern standards.

Q. Can you give any instances, or have you in mind any such conditions?

A. It must be remembered that the reports of the members of the organization are made to me, and just now I doubt if I can recall offhand any that I may have come in contact with,—personal contact with. I do not recall.

Q. Is it not probable then that the boundaries of a great many of the older states, established in an early day, if surveys thereof were established at the present time, would be different from what they were when originally established?

A. Modern methods in the determination of azimuth and measurement are now far more accurate than those employed in an early day.

Q. That is the point I am trying to get at.

A. Yes sir.

Q. That then answers my questions on that. There is another thing I may later recur to; that is all just now.

Re-redirect examination by Frank W. Clancy, Counsel for the Plaintiff, the State of New Mexico:

Q. Recurring to your examination or examination of the Darling [fol. 816] lines in 1899 and 1901 I want to make sure I understand you on that. As I understood your testimony, from Darling's astronomical monument number six, running west to the one hundred and ninety-sixth mile corner, you found and identified the line according to his notes and the signs then in existence?

A. Yes sir with the exception of six corners——

Q. That you did not find?

A. —that I did not find; I did not find the six corners westerly from astronomical station number six which is east of the one hundred and eighty-second mile corner to the one hundred and ninety-sixth mile corner.

Q. But still you satisfactorily identified the line from that monument up to the one hundred and ninety-sixth mile corner?

A. Yes sir.

Q. But from the one hundred and ninety-sixth mile corner as I understand it, you found there was a deflection of the line to the south, and you did not find, however, any mile corners or any markings to indicate the line, until you arrived at the bank of the Navajo river where there was a stone buried in the ground?

A. Not entirely. I will say from the one hundred and ninety-sixth mile corner the line bears heavily to the south to the two hundred and first mile corner which was identified, as was also the two hundred and second, the two hundred and third, and two hundred and sixth. Westerly, nothing was found on the line with the exception of occasional old blazes on trees until the stone was reached on the west bank of the Navajo river.

Q. The effect of your testimony was, that presumably at that point, Darling ascertained that he was south of the parallel?

A. Yes sir.

[fol. 817] Q. He sought to correct his line going northeast where he had established monument seven, which was thirty-five chains approximately?

A. Yes sir.

Q. From that monument number seven Darling retraced his line to the east, but not all the way back to his monument number six?

A. Yes sir.

Q. How far did he reestablish his line from monument number seven back towards his monument number six?

A. To Ewell canon, a distance of two or three miles.

Q. And there he appears to have stopped and never did connect his monument number seven with his monument number six?

A. Yes sir.

Q. And that accounts for the difference between that part of his line east of Ewell canon and that part which is west of Ewell canon?

A. Yes sir.

Q. Now at what mile corner is the west bank of Ewell canon, as nearly as you can state?

A. As I recall it is near the two hundred and twelfth mile corner; Ewell canon is between the two hundred and eleventh and two hundred and twelfth mile corner.

Q. As to the Darling line?

A. Yes.

Q. And is there any direct connection between the two hundred and eleventh and two hundred and twelfth mile corners with the one hundred and ninety-sixth mile corner, or is that where the variation occurs?

A. The two hundred and eleventh and the two hundred and twelfth mile corners were never found on the ground, and in 1917 the general land office established a portion of the Darling line which ran west from the two hundred and sixth mile corner to Ewell canon and by running east from two hundred and seventeenth mile corner to Ewell canon, the terminus of the two lines being connected by an oblique line in the canon.

Mr. Ramsey: I would like to have a description of that canon put into the record by the witness.

[fol. 818] Mr. Clancy: Would it not have been possible to run a correcting line from Darling's corner, his monument number six to his monument number seven, as he established it after it was found it was south of the thirty-seventh parallel of latitude, even though Ewell canon intervened?

Mr. Johnson: That is what he should have done in the first place and it would be possible to establish again the true line from astronomical monument number six to astronomical monument number seven.

Mr. Clancy: Then if I understand you correctly Ewell canon is so deep and so rough that therein practical measurements would not be possible thru or across that canon, but by triangulation, the true line could be perfectly established?

Mr. Johnson: Yes sir, that is correct.

Q. But there never has been any establishment of such a line from Darling's monument number six to his monument number seven across Ewell canon?

A. Not by the government.

Q. Do you think of anything more: that is all I wish to ask.

Re-recross-examination conducted by Wm. R. Ramsey, Assistant Attorney General and also of Counsel for the Defendant, the State of Colorado:

Q. Then astronomical monuments sixth and seventh could be connected by a true line, and if that were done it would be consistent with Mr. Darling's whole line as established by him: is that correct?

A. It is certain from the field notes that such a line would not be east and west, but would have to bear north of west, from astro-[fol. 819] nomical station or monument number sixth.

Q. It would be approximately not far from an east and west line would it not?

A. From such data as we have available at this time it would appear that such a line would have a bearing of about eighty-nine degrees and forty minutes.

Mr. Clancy: Or within twenty minutes of a true east and west line?

Mr. Johnson: Yes sir.

Mr. Clancy: Can you state Mr. Johnson whether or not from the testimony or otherwise there is any substantial difference between the methods employed and instruments used, or which should have

been employed and used by Darling in the year 1868 and those which were used and employed by Mr. Carpenter in his survey?

Mr. Johnson: I can only say in answer to that question that the requirements of the general land office in the matter of the determination of boundary lines and the execution of all other surveys are now much stricter, perhaps in every respect, than they were at the time Darling executed his survey.

Mr. Clancy: Can you now state by reference to the field notes of the Darling survey and the field notes of the Carpenter survey, whether there was any substantial difference in the methods used and employed, or the instruments used and employed?

Mr. Johnson: Yes sir, I think I could by making an examination of the field notes of both surveys.

Q. You would not need to make a detailed examination, would you of the field notes of both surveys; would not an examination of [fol. 820] the preliminary entries thereof show whether or not there was any substantial difference between the instruments used and employed by the two surveyors on these two surveys of the Colorado-New Mexico boundary?

A. Without a detailed examination of the field notes and reports of the two surveyors, I cannot so state.

Q. We will not ask you at the present time to go into such detailed examination?

A. Yes sir.

Mr. Ramsey: In making astronomical observations to determine locations as to latitude, the instructions to Mr. Carpenter permitted a closing limit with three seconds of arc on the thirty-seventh parallel?

Mr. Johnson: Yes.

Q. Will you please explain what that means?

A. It simply means that in the execution of all the surveys, the government recognizes the fact that owing to personal equation or inequality of instruments and measuring equipment, that it is impossible to make exact determinations, and therefor a limit of error is allowed. Off the record please Mr. Examiner.

Q. What you have just said explains just what I want Mr. Johnson. It was not clear to me before. I want the examiner to take that down.

Mr. Examiner: He said it was "off the record."

Mr. Clancy: But I want it taken down. That's what I'm asking.

Mr. Examiner: Will you repeat it?

Mr. Clancy: Mr. Johnson you have just made a statement not for the record and which has not been taken down by the examiner, being an explan-tion of what can or cannot be done in determining and running a parallel of latitude. Will you please repeat that explanation again so that Mr. Luther, the examiner, may take it down in shorthand, as I think it might be of some value to both counsel and to the court.

[fol. 821] Mr. Johnson: The record of both the Darling survey and the Carpenter Survey, of the thirty-seventh parallel of north latitude, between the one hundred and third and the one hundred and ninth meridians, west longitude, shows that the tangent lines were run by both surveyors, between astronomical monuments and offsets made therefrom to the parallel of latitude.

Mr. Clancy: You also stated something about the theoretical possibility of absolute precision in establishing a parallel of latitude by the methods prescribed by our United States Coast and Geodetic Survey, and the British government, in its surveys in India, and as to the difference between the theoretical possibility, and what is the practicable possibility; as the examiner did not take that; I wish you would repeat that for him now, so that he can take it in shorthand. I am now asking you to try to do so; give us your views of the matter again.

Mr. Johnson: What I had in mind, Mr. Clancy, was that in the establishment of parallels of latitude, of the public land survey system, we carefully determine our initial points by astronomical observations, and then run a tangent line to the parallel therefrom, making the proper offsets to the parallel. In this way we secure a line every point in which is equidistant from the pole. This method is employed largely in the determination of latitudinal boundaries of Indian reservations and other large tracts, and on parallels of latitude on public land surveys—

Examiner Luther: Is that all?

Mr. Johnson: Yes.

Mr. Clancy: In determining such initial points, is not the attempt to establish the intial point upon the parallel of latitude?

Mr. Johnson: Yes sir.

[fol. 822] Q. So that you would not run, from that initial point—you would not run any tangent to the parallel?

A. From that initial point we would project the tangent, offsetting to the parallel.

Q. From the initial point you would run a tangent east or west?

A. Yes, from the initial point.

Q. The initial point being on the parallel, so that a line would be run east and west, and at intervals verified by running tangents to the parallel?

A. Yes sir, verified and established by making offsets to the parallel.

Q. To ascertain where the parallel is it would be necessary to make astronomical observations at other points along the parallel, besides the initial point, would it not?

A. It would; in lines of considerable length check by astronomical observation is desirable.

Q. Otherwise you would not know where the parallel was?

A. Yes sir. Our examination of these surveys shows that was done.

Q. Between astronomical stations?

A. No. I may add, Carpenter employed, so far as I can see from the record, the same method of survey that Darling employed.

Q. And that method would give results as to the correctness of the parallel as nearly as practicable?

A. Yes sir.

Q. And give the correct location as nearly as possible?

A. Yes sir; I may add, if properly applied.

Q. Nothing more, Mr. Johnson.

Mr. Ramsey: There was no question as to the correctness of the initial point of the Darling line, was there?

Mr. Johnson: I do not know.

Mr. Ramsey: Just one other question. Is it not a fact that in the [fol. 823] public land surveys that you allow a larger limit for closing than three seconds of arc?

Mr. Johnson: Yes sir.

Mr. Ramsey: How much difference do you make?

Mr. Johnson: The allowable limit of error in the execution of public land surveys is twenty-one minutes of arc.

Mr. Ramsey: That is all.

Examiner Luther: Is that all the testimony desired at this time to be adduced by either party?

Mr. Keyes: That is all of this witness.

Mr. Clancy: Yes.

Mr. Keyes: But I want the record to show that it was our purpose to put in evidence at this time of all entries and patents made on government lands in the vicinity of the thirty-seventh parallel of latitude, between the one hundred and third and the one hundred and ninth meridians, the surveys of which have been closed on the Darling line. We find, however that the records of all such entries and patents are not in Denver, but are lodged at the Durango, Del Norte and Pueblo land offices. Let the record show that at some later date we expect to put this evidence into the record of these proceedings. However, when we have secured the proper data, it is possible that we can later stipulate what should go into the record in this cause.

Mr. Clancy: I have no doubt but that we shall be able to agree on that; that there will be no trouble about that, without the necessity of producing witnesses from the general land office to identify any such records.

[fol. 824] Mr. Keyes: After the testimony is taken at Santa Fe by you Mr. Clancy, it is possible we shall at that time also put in further evidence, and later on put in further evidence at Denver.

Mr. Johnson: I would like opportunity, the same as Mr. Kidder to read over, correct and sign my testimony.

Mr. Clancy: I think you may be permitted to do that. I think the most liberal latitude should be allowed the witnesses in corrections and additions to their testimony, so that we shall get at all the facts.

Mr. Johnson: It is of a technical nature and the misquotation of a word might mean entirely different than was intended.

Mr. Clancy: I have no objections to your doing that.

Mr. Examiner: You are excused Mr. Johnson then. Is that all gentlemen?

Mr. Clancy: Yes sir.

Mr. Keyes: This concludes this branch of the hearings.

Examiner Luther: The taking of testimony at this time is concluded at 4:20 p. m., Wednesday, the nineteenth day of July, A. D., 1922, at the office of supervisor of surveys.

Mr. Keyes: If the changes amount to much they can be stipulated. There is nothing said about that in the order.

Examiner Luther: Before I send in the evidence I will first let the witnesses examine and correct the same, if there is no objection.

[fol. 825] STATE OF COLORADO,
City and County of Denver, ss:

EXAMINER'S CERTIFICATE

It is hereby certified that the above and foregoing transcript of shorthand notes contains all the proofs, evidence, testimony, and proceedings, presented, offered, or adduced, July 17, 18, and 19, 1922, at Denver, Colorado, both on the part of the complainant and the defendant.

Henry C. Luther, Examiner.

[fol. 826] IN THE SUPREME COURT OF THE UNITED STATES

[Title omitted]

EXAMINER'S CERTIFICATE

To the Honorable the Supreme Court of the United States:

The undersigned examiner, appointed and designated by orders of this court, entered in this cause, respectively, on the 30th day of January, 1922, and the 15th day of May, 1922, to take all proofs which may be offered by the parties to this cause, in Denver, Colorado, and to return the same, together with all proceedings in connection therewith and all exhibits submitted by the parties, to this court, respectfully reports to the court that, on Monday, July 17, 1922, he took the oath required by said orders; and on said Monday, July 17, 1922, on Tuesday, July 18, 1922, and Wednesday, July 19, 1922, in Denver, Colorado, counsel for the respective parties being present, he proceeded, pursuant to said orders, to take the testimony offered in the cause; and on the last named day, the final session was held in said city, the parties offering no more testimony in said city, at said time.

The said orders were executed by receiving the testimony of the several witnesses named in the testimony, who were sworn to testify [fols. 827-829] the truth, the whole truth, and nothing but the truth, before giving their testimony and evidence; and the testimony and evidence so given and adduced by them was taken down in shorthand by undersigned examiner, and such testimony and evidence being thereafter duly transcribed into typewriting is now herewith submitted together with all the exhibits offered in evidence by either of the parties to said cause. (there being during the time of the taking of the above testimony and proceedings, however, no separate documents or exhibits from either of the parties offered or tendered to me, as examiner, for marking and identification, but only certain offers and tenders were made during said time, and also certain notations in the record that later on certain other documentary evidence would be put in, all as shown by the testimony and proceedings at large, supra).

The testimony and proceedings taken in short hand during said time was duly transcribed and is contained in 95 pages, numbered from 39 to 133 both inclusive.

The complainant, the state of New Mexico, offered and tendered all of the above testimony and proceedings, save in due course, the cross-examinations of the witnesses by the state of Colorado, and its notation of taking further evidence later on that it intended to take now.

All the above testimony, evidence, proofs and proceedings have been filed with the clerk of this Honorable Court.

The undersigned examiner, Henry C. Luther, on honor and under original oath filed herein, hereby certifies to the correctness of said testimony, evidence, proofs and proceedings.

Respectfully submitted, Henry C. Luther.

Dated at Denver, Colorado, 21st September, 1922.

[fol. 830] IN THE UNITED STATES SUPREME COURT

[Title omitted]

Testimony taken at Santa Fe, New Mexico, September 11-12, 1922, before Ethel F. Stevenson, examiner designated by the parties hereto in pursuance of an order of the court, oath required by said order having been heretofore filed in the office of the clerk of the court.

Appearances: Frank W. Clancy, Esq., for the State of New Mexico; Victor E. Keyes, Attorney General; William R. Ramsey, Asst. Attorney General, for the State of Colorado.

By Mr. Clancy: I offer in evidence certified photographic copy of field notes of the examination of surveys of the Colorado-New Mexico boundary line between the 274 and 287 mile corners, executed by E. N. Darling, 1868, as examined by Frank M. Johnson, Special Agent, examination began November 2, 1899 and completed November 23, 1899, which the examiner will mark as complainant's exhibit No. 1.

[fol. 831] By Mr. Ramsey: The defendant objects to the exhibit offered upon the ground that same is incompetent, irrelevant and immaterial, and does not tend to throw any light upon the issues in this case.

By Mr. Clancy: I offer in evidence certified photographic copy, as described in the certificate "of the field notes of the survey of the Colorado-New Mexico boundary line by Frank M. Johnson, examiner of surveys in 1900 and 1901", but which is more correctly described in the body of the document as "the examination survey of the Colorado-New Mexico Bdry. line between Ast. Mons. No. 6 and 8", which the examiner will mark complainant's exhibit No. 2.

By Mr. Ramsey: The defendant makes the same object to complainant's exhibit No. 2 as that made to complainant's exhibit No. 1, and upon the same ground.

By Mr. Clancy: I now offer in evidence a copy of Chapter 37 of the laws of Colorado of 1901, which is entitled "An act to re-establish and fix the southern boundary line of the State of Colorado on the thirty-seventh parallel of north latitude, between astronomical monument No. 6, near Osier, Colorado, and astronomical monument No. 8, near Arboles, Colorado, as heretofore established by Ehud N. Darling, for the government of the United States, and to make the report and record of the survey and re-establishment of said line, when filed and recorded in the office of the Secretary of State, evidence in all courts of Colorado", which the examiner will mark complainant's exhibit No. 3, said law being approved April 11, 1901.

[fol. 832] By Mr. Ramsey: Same objection as to preceding exhibit.

By Mr Clancy: I now offer in evidence a copy, certified by the Secretary of State of Colorado, of the report of Charles A. Johnson, Commissioner appointed by the Governor of Colorado, under the act of the legislature of that state, a copy of which has just been offered in evidence as complainant's exhibit No. 3, which the examiner will mark complainant's exhibit No. 4.

By Mr. Keyes: Defendant objects to the introduction of complainant's exhibit No. 4, upon the ground that it is incompetent, immaterial and irrelevant to any issue in this case.

By Mr. Clancy: In the natural order of these documentary exhibits, the next would be the field notes of the Carpenter survey, but those field notes were introduced in evidence at the hearing in Denver and were not assigned any number at that time, but may be considered as complainant's exhibit No. 5.

By Mr. Keyes: To the introduction of which field notes, objection was made at the hearing in Denver, and the same objection is made

at this time for the reason said complainant's exhibit No. 5 is irrelevant, immaterial and incompetent to any issue in this case.

By Mr. Clancy: I now offer in evidence a certified copy of the field notes of the examination of the survey of the Colorado-New Mexico boundary line, executed by Howard B. Carpenter, as examined by Frank M. Johnson, examiner of surveys, between July 8, 1903 and August 7, 1903, which the examiner will mark complainant's exhibit No. 6.

[fol. 833] By Mr. Ramsey: Defendant objects to the introduction of complainant's exhibit No. 6 on the ground that the same is incompetent, irrelevant and immaterial, and does not tend to throw any light upon any of the issues of this case.

By Mr. Clancy: I next offer in evidence a photographic copy of letter from W. A. Richards, Commissioner of the General Land Office, addressed to Mr. B. H. Carpenter, under date of February 25, 1904, which contains an acceptance by the Commissioner of the survey made by Mr. Carpenter, which is marked complainant's exhibit No. 7.

By Mr. Ramsey: The defendant objects to the introduction of complainant's exhibit No. 7, upon the ground that the same is incompetent, irrelevant and immaterial, and does not tend to throw any light upon the issues in this case.

By Mr. Clancy: I next offer in evidence a copy, certified by the Surveyor General of New Mexico, of diagrams of T. 32 N., R. 4 W., and T. 32 N., R. 7 E., accompanying the special instructions dated June 20, 1907, for the survey of said townships, which the examiner will mark complainant's exhibit No. 8.

By Mr. Ramsey: The defendant objects to the introduction of complainant's exhibit No. 8, upon the ground the same is incompetent, irrelevant and immaterial, and does not tend to throw any light upon the issues in this case.

By Mr. Clancy: I now offer in evidence the report of Alonzo E. Compton, Assistant Supervisor of Surveys, to Frank M. Johnson, Supervisor of Surveys, which report is dated November 20, 1916, and is entitled "report of an investigation in alleged overlaps along [fol. 834] the Colorado-New Mexico State Boundary in Townships 32 N., Rs. 1 and 4 W. and R. 1 E," which the examiner will mark complainant's exhibit No. 9.

By Mr. Ramsey: To which defendant objects for the same reasons as stated in the objections to the preceding exhibit.

By Mr. Clancy: I offer in evidence a certified photographic copy of the diagram showing overlap and conflicts along the Colorado-New Mexico state line in T. 32 N., R. 4 W., as developed by investigations made November, 1916, by A. E. Compton, Assistant Supervisor and F. M. Johnson, Supervisor, which the examiner will mark complainant's exhibit No. 10.

By Mr. Ramsey: Defendant objects to the introduction of complainant's exhibit No. 10 for the reason same is irrelevant, incompetent and immaterial, and does not tend to throw any light upon the issues in this case.

Mr. Clancy: I offer in evidence copy, certified by the U. S. Surveyor General for New Mexico, of the field notes of the survey for the resurvey and restoration of that portion of the original boundary line between Colorado and New Mexico, embraced between the 203 mile corner and the 7th ast. mon., as surveyed by Eliud N. Darling, surveyor and astronomer in the year 1868, executed by William C. Perkins, U. S. Surveyor, which the examiner will mark complainant's exhibit No. 11.

I now offer in evidence a copy, certified by the U. S. Surveyor General for New Mexico, of a plat showing restoration and resurvey of a portion of the Colorado-New Mexico boundary line as surveyed by William C. Perkins, U. S. Surveyor, between September 2, and November 3, 1917, which the examiner will mark complain-[fol. 835] ant's exhibit No. 12.

I next offer in evidence a letter dated August 3, 1917, from Frank M. Johnson, supervisor of surveys, addressed to Frank W. Parker, Chairman of the New Mexico Boundary Commission, together with blue print referred to in the letter, which the examiner will mark complainant's exhibit No. 13.

I next offer in evidence House of Representatives Document No. 604 of the first session of the 57th Congress, which the examiner will mark complainant's exhibit No. 14.

By Mr. Ramsey:

The defendant objects to the introduction of complainant's exhibit No. 14 on the ground that the same is incompetent, irrelevant and immaterial, and does not tend to shed any light upon the issues of this case.

By Mr. Keys: And upon the further ground that the only survey ever approved by competent authority was the Darling survey.

By Mr. Clancy: I next offer in evidence Senate Document No. 89, of the 3rd session, 58th Congress, which the examiner will mark as complainant's exhibit No. 15.

By Mr. Ramsey: Dedendant objects to the introduction of complainant's exhibit No. 15 for the reason that the same is incompetent, irrelevant and immaterial.

By Mr. Clancy: I offer in evidence House of Representatives Report No. 1726, 1st session, 60th Congress, which the examiner will mark complainant's exhibit No. 16.

By Mr. Ramsey: Same objection as to preceding exhibit.

[fol. 836] By Mr. Clancy:

I offer in evidence Senate Document No. 604, of the 2nd session, 60th Congress, which the examiner will mark complainant's exhibit No. 17.

Adjournment taken until 1.30 P. M.

GUY P. HARRINGTON, first being duly sworn, testified as follows:

By Mr. Clancy:

Q. What is your name and place of residence?
A. Guy P. Harrington, Santa Fe, New Mexico.
Q. What is your occupation?
A. Assistant Supervisor of Surveys, General Land Office.
Q. How long have you held that position?
A. Since April 6, 1922.
Q. What had been your position or occupation before that time?
A. Cadastral engineer in the same Bureau.
Q. How long have you been in the service of the land office?
A. Since 1907, 15 years.
Q. What have been your duties during the time that you have been in the land office, in a general way.
A. Making surveys and supervising surveys pertaining to the public land.
Q. In the course of that service, have you had occasion to do any work in connection with the boundary between Colorado and New Mexico.
A. Yes sir.
Q. When was that and what was the nature of the work that you had to do.
A. In 1919, I was on the boundary line between Colorado and New Mexico for the purpose of making a survey showing the closures of the Colorado surveys and the New Mexico surveys, that is showing where the relative positions of the closings of public land surveys [fol. 837] of the two states on the state line.
Q. Did you have occasion to examine the closings of those surveys in detail.
A. Yes sir.
Q. To what extent.
A. I retraced all the section lines in ranges 1 E. both in Colorado and New Mexico, and ranges 1, 2, 3 and 4, W. in both states; that is, the closings on the line and I retraced in detail all of the homestead entries and patents which had been issued by the United States and entered by the U. S. on both sides of the lines and made what you would call a metes and bounds survey of each patented or entered tract in connection with that work.
Q. Did you at that time become familiar with the Carpenter and Darling surveys—line surveyed by them?
A. Yes sir.
Q. Did you find that any of the closings of the homestead entries that you retraced and surveyed—was there any discrepancies or difference between the closings as to which line they were closed on.
A. Yes sir.
Q. Tell us all that you recall about that.
A. I found from the condition of the closing, of course by the surveys closed I refer to the regular sub-division or sectional lines when I speak of the surveys; that there is one set on the Colo. side and another on the New Mexico side, and the sectional lines running

north or south from each set were to be projected—that is, the intent of the survey was to project the lines to a point of intersection with the boundary between Colo. and N. Mex., and I found that in most—there are very few cases where this projection and intersection with the line had been properly made and noted. In range 1 west, for instance, the Colorado surveys closed and stopped at a point [fol. 838] much further south than the boundary line existed on the ground, close to half a mile, and in that same township the New Mexico surveys closed on a point, approximately, measuring from the section corners, very close to the present boundary line; that's the condition in range 1 west. That condition existed in ranges 2 and 3, although not so marked, and in range 4 the closings were originally exactly on the Carpenter line. No note was taken of the Darling line whatever. Part of my work was to note the intersection these lines made with the Darling line as restored in 1917, but in that connection I didn't destroy any closings made on the Carpenter line. Those corners remained just where they were in accordance with my instructions, being a trip that there was a question as to its status. It was my understanding that neither set were to be destroyed, although, for matters of information I was directed to tie on to the Darling line and make the closures there. I found in regard to patents that the United States had patented land on the Colorado side clear down into New Mexico, south of either the Darling or the Carpenter line. One homestead entry, I remember, Archuleta's in the vicinity of Edith was that way. On the other hand the U. S. had patented land on the New Mexico side to the Darling line. Both of these patents were issued in accordance with the township plats. The result was that on the south of the Darling line there was a strip of land that was doubly patented. That is, it was patented to one man on the New Mexico side and another man on the Colorado side. As far as the titles are concerned and as far as the position of the land on the ground is concerned, it makes absolutely no difference as to these people's rights, whether the Darling line is the state line or the Carpenter line is the state line. They have a certain tract of land in either case; the man in Colorado has a tract of land which [fol. 839] is described by fractional lots; now if the Carpenter line is accepted as the boundary line and so determined that fractional lot and subdivision which the U. S. patent is still going to be on the ground and still his land, even though part may be in New Mexico, because the section corners are there and the subdivision is there, and vice versa. Of course all of those lands are described by sections and legal subdivisions and they will not necessarily stop on the Darling or Carpenter line, but in reference to these subdivision corners.

Q. Were there any cases where there was a conflict between the patents that closed on that imaginary line that you speak of, and any that closed on either the Darling or Carpenter line?

A. All in range 1 west, in the vicinity of Edith, there were 4 or 5 conflicts. Practically the whole area of the valley was patented, and there were numerous conflicts all along there from the fact that the Colorado surveys closed to a point nearly half a mile south of

the Darling line, whereas the New Mexico surveys closed close to the Darling line, and the result was a conflict of half a mile in these patents. There is that conflict which exists, and of course, they both hold identical land on the ground; both sides claiming it, but neither one of them are bounded either by the Darling or Carpenter lines, but by an imaginary line.

Q. Is there any way of accounting for the failure to make the closing upon the Darling line, which, as I understand, for administrative purposes has been recognized by the land office as the boundary line.

A. The main reason, probably—which is nothing new to us who have been following these old surveys, and is something we find, very frequently, is that these surveys were made under contract. The locating of a line sometimes entailed a lot of work; it would [fol. 840] take a man quite a little time with a party, which meant expense every day, to find and run and properly close upon it, especially a line run out away from other surveys where it is merely a case of hunting it; he knows approximately from some other ties on the line where it ought to be and he will get a fraudulent tie and falsify his notes and turn them in. That is nothing new, and that is probably the case in most of these closures.

Q. Of course it is apparent that these surveys which closed, as you say something like half a mile below the Darling line, could not have closed on anything they found on the ground; there wasn't anything there for them to close on.

A. No sir, nothing that I ever found. I looked into that; I think their closings are absolutely fraudulent as I calculated. In connection with my [redacted] I hunted out these lines they claimed to have tied to and found nothing.

Q. Will you look at this diagram which has been put in evidence as complainant's exhibit No. 10 in this case, and state if that shows the relative position of the Carpenter and Darling lines and the Colorado closing line.

A. Yes sir, that shows the three different lines; the line of the Colorado closings, the Darling line as restored and the Carpenter line.

Q. Are we to understand that patents were issued for lands according to these Colorado surveys that closed on that line which is really at a point south of the Darling line.

A. Yes sir, I believe that Colorado patents have been issued to that line; at least entries have been made to that line; I don't remember exactly as to what was patented; I am quite sure patents have been issued; I know of several entries on the Colorado side.

Q. Those surveys as you recall, purported to close on the Darling line although they actually did not.

[fol. 841] A. Yes sir, they purported to close on that line.

Q. I believe you said there were New Mexico surveys which closed on the Carpenter line.

A. Yes sir.

Q. And that you left the indications on the ground of that closing.

A. Yes sir.

Q. Do you know whether or not any patents were issued upon those surveys.

A. I believe they have been yes sir, up to the Carpenter line; I know several entries were made and allowed, and I am quite sure the patents were issued, but I can get that information for you up to the Carpenter line, according to the closings on the Carpenter line on the New Mexico side.

Q. Can you check that up without much trouble or inconvenience.

A. I can in about two minutes.

Q. If you will do that, we had better suspend for a few minutes.

A. There are no entries in T. 32 N., R. 7 E.; most of that is in a national forest. In T. 32 N., R. 4 W. there are 4 patents which extend to the Carpenter line. Roque Gallegos, has lot 1, Sec. 8, lots 3 and 4, Sec. 9, serial No. 012788. The original survey of T. 32 N., R. 4 W. was closed on the Carpenter line and as a result of my work up there, where closings were made on the Darling line as restored; a supplemental plat has been prepared and they have changed the closings so that the plat upon which they are using now stops at the Darling line. These entries were made and patented before this new plat was made. Subsequent to the Carpenter survey and prior to 1919 when these closings were made on the Darling line, no closings were made on the Darling line. Jose D. Sandoval, lots 1 and 2, Sec. 9, serial No. 012760; those lots are bounded on the north by the Carpenter line. Demetrio Madrid, lots 2, 3 and 4, Sec. 10, serial No. 012601; the north boundary of these lots is the Carpenter line. Antonio D. Lorenzo, lot 4, Sec. [fol. 842] 11, Serial No. 126125, the north boundary of which is the Carpenter line.

By Mr. Keyes: Have you the plat from which these were taken.

A. I just consulted it in the land office.

Q. Are they available there so they could be brought in by you.

A. I think I can get one from the Surveyor General's office, a duplicate of it. I want to make one explanation in regard to these different surveys. This survey which closed on the Darling line is purported here to have been made by Fred C. Miller and I have been referring to it as my survey. I want to explain; Fred C. Miller, although this appears under his name on the record, died while on that work of the 'flu' without turning in any notes, so I went up there and practically had to do the whole thing over. That's why I have been referring to it as my survey.

By Mr. Clancy:

Q. Was that the extent of your work that brought you in contact in any way with the boundary line between the two states.

A. Yes sir, that's practically all the contact I had with the line.

Q. Have you any fact within your knowledge that would be of any benefit to either side in this case. I think you must know what the controversy is about and I don't know whether there is anything else that you know of, but if there is, tell us about it.

A. There is one fact I might bring out, probably a matter of information more than anything else. It appears to me that the po-

sition of this boundary line, whether the proper boundary line between Colorado and New Mexico is the Darling or Carpenter line, isn't going to make any difference as I see as to the titles in either state. That's one point that occurs to me. If the state line should be moved up to the Carpenter line, that doesn't mean all of those Colorado entries have got to stop at that line, or if it is moved to the Darling line as recognized by the land office, that isn't going to cut [fol. 843] off New Mexico entries; they have all their descriptions by legal subdivisions in certain sections. A change in this line, is going to mean that the land may be in a different state. It will not effect these titles because the U. S. owned the land on both sides of the line. A section or subdivision of a section is a separate and distinct proposition absolutely identified, and the position of the state line will not make any difference on either side.

Q. Your idea being that as the land belonged to the U. S., a deed from the U. S. in the form of a patent will convey the land whether it is in Colorado or New Mexico.

A. Yes sir, the name of a state in a patent may be given as an incidental part of the patent, but if a Colorado entryman has a patent for a certain subdivision of a section which can be absolutely identified on the ground by section corners, the fact that he happens to fall in New Mexico, is not going to deprive him of his land. The only change will be the name of the state. His land is there regardless of what line is adopted, or what state he may be in.

Cross-examination.

By Mr. Keyes:

Q. Is that given as a legal opinion, Mr. Harrington.

A. Just given as a personal opinion.

Q. In the event a Colorado entryman should have, for instance, in a particular township a certain section, and in the event, according to the plat another entryman in New Mexico should have another section in New Mexico and there should be a conflict between those two lines, don't you think it might effect the title of this overlapping patent.

A. What might.

Q. The change of a boundary line and therefore the corners limiting the sections.

A. There will not be any change in the corners of the sections.

Q. Isn't it true that now according to the Darling line, the corners have been marked of sections and that the respective sec- [fol. 844] tions come down, for instance, to the Darling line.

A. Not necessarily.

Q. Suppose that is the case, don't you think then it might effect the title to the lands in the strip in controversy.

A. I don't think the position of that line, the actual line, that is, I don't think that a decree which will set either one of these lines as the line between the two states, will have any effect whatever on the titles to any land.

Q. Isn't it true that in many instances at least the sections and quarter sections have been marked down to, for instance, the Darling line.

A. Yes sir, some of them marked on the Darling line, beyond it and this side of it and every old place. In further explanation, those sections have a certain line as a limiting boundary. We can determine that line from the plats and follow out the section lines, but it isn't going to make any difference in this case; in one case the limiting of the section may be the Darling line and in another case it may be the Carpenter line. They limit those sections, it is true, but the fact that one of these lines is the boundary between the states doesn't make any difference, provided these sections have a limit by a certain line, but it doesn't make any difference whether that line is between the two states or not. Just so you got the right line, for the limit of the section.

Q. Are you familiar with patents on each side of the line.

A. I was before, but just like I had to do here, I had to go and refresh my memory. I had a record of all the patents at one time, but it is several years ago and I have forgotten the status of the Colorado side.

Q. What line and survey is now recognized by the U. S. land office as the boundary between Colorado and New Mexico.

A. The Darling line.

Q. The surveys of all patents issued in the vicinity of the 37th par. north latitude between the states are closed on the Darling line at the present time.

A. No, they are closed every place there. The patents I just [fol. 845] testified about were on the Carpenter line and I testified they had previously been issued on the Darling line and also on the imaginary line.

Q. Is there any authority given by the U. S. land office for closing on any other line than the Darling line.

A. Not at the present time.

Q. Was there ever any surveys closed on any other than the Darling line except in the one township concerning which you have testified

A. I testified there were two townships where they closed on the Carpenter line and I also testified there were several townships that were not closed on any line, just an imaginary line, although the records show they were closed on the Darling line.

Q. Was there ever any authority from the U. S. land office to close on any imaginary line.

A. No sir.

Q. The instructions from the U. S. land office have always been then to close on the Darling line except in the two townships testified to.

A. As far as I know, yes sir.

Q. The Darling line has always been recognized as the existing boundary between the states except during a temporary period when the Carpenter line was recognized in those two townships.

A. By the land office.

Q. You understand that there have been 4 patents issued closing on the Carpenter line.

A. Yes sir.

Q. Were those patents issued during that short period of time subsequent to the Carpenter survey when the land office temporarily recognized the Carpenter line?

A. I don't know just what the limiting date, or I don't know the interval when the land office recognized the Carpenter line and when they didn't. I will say these patents were issued sometime—the survey was made in 1909, these patents were issued sometime between 1910 and 1949. That's my opinion they were.

Q. The instructions given by the U. S. land office to surveyors [fol. 846] at the present time is to close the surveys, it is not, on the Darling line.

A. We haven't closed any but this one group recently. This group in range 1 E and ranges 1, 2, 3 and 4 West, those 5 townships we were instructed in that case to close on the Darling line; also we tied to the Carpenter line. None of these were original surveys; more on account of the controversy that these surveys were made. We haven't closed any original townships against this resto[illegible] Darling line.

Q. There are many other patents that have been issued in the vicinity of the 37th Par. between 103 and 109 meridian, than the four you have mentioned.

A. Yes sir.

Q. All of those others, without exception, so far as you know, were supposed to go to the Darling line.

A. They were supposed to as far as I know.

Q. The Darling line is the line that has been recognized by the U. S. land office, since the approval of the Darling survey way back in 1869, is it not?

A. I presume it is, as far as I know it has, except this interval when the Carpenter line was recognized.

Q. If errors were made by individual surveys in the survey of sections going either north or south of the Darling line, it was not through any instructions given by the U. S. land office.

A. The land office never gave them instructions to make errors, no sir.

Q. Did they give instructions to go north or south of the Darling line.

A. I don't presume they did; they gave instructions to go to the Darling line.

Q. How many townships have you surveyed in the region of the boundary between Colorado and New Mexico.

A. I haven't made the original survey in any township. This survey I made in T. 32 N., R. 1 E. and the same township, R. 1, 2, 3 and 4 W. was, you might say, a survey for information; to locate [fol. 847] the various positions of these lines and the various positions of entrymen and as to what extent the same extended into

New Mexico and across the line. I didn't make the original survey on any of these, merely to get all these points down and located; also the object of that was to correct the erroneous closing, to get the proper closing.

Q. How can you tell from this plat, to which you have referred, that any of the 4 patents concerning which you have testified, close on the Carpenter line.

A. You don't see any lot numbers that are covered in these patents. You will find lot numbers on this other plat (indicating).

Q. There is nothing on the plat showing the restored Darling line that would indicate how far north the patented land would come.

A. The patents were not issued on a basis of this plat showing the restored line. They were issued on the basis of the previous plat although the Carpenter line is projected, and the distance between the Carpenter and the Darling line given. There is a tie between the 100 mile corner of the Carpenter Line and the Darling line which shows they have been tied together and the position on that plat is approximately the position of the Carpenter line.

Q. Is it not true at the present time all official plats in the U. S. land office, so far as you know, show the Darling line as the recognized boundary between Colorado and New Mexico?

A. It isn't true, but generally, yes sir, making that statement as broad as you make it, it isn't true. T. 32 N., R. 7 E. still remains on record and on file as closing on the Carpenter line. Generally, yes, but not in every case.

Q. Isn't it true that even in this township, according to the more recent surveys of the land office, the boundary between the two states is shown as the Darling line.

A. That question is so general it is hard to answer. That plat on file in the land office and various offices, still stands as originally surveyed. There is an exception that stands as originally surveyed closing on the Carpenter line, the reason is, nothing has come up to [fol 848] cause the U. S. to close it on the Darling line. If they opened up land for entry, it would require closing on the Darling line, as they probaby wouldn't allow closing to the Carpenter line now.

Q. Isn't it true that instructions received from the Commissioner of the General Land office, at or about the time of the recent surveys by Perkins and others, direct that the closings of all surveys between New Mexico and Colorado be made upon the Darling line.

A. I couldn't say for sure as to the wording of those orders, but it is my understanding that the Commissioner of the land office recognizes for the purposes of the land office, the Darling line as the boundary. Just how that was promulgated out here, I couldn't say exactly. I could look it up and get it, but as to whether he said all surveys be closed on that line hereafter, I don't know. It is no doubt the intent of the Commissioner that all surveys be closed on that line; it is understood by all of us that the Darling line is recognized by the land office, and the line that we recognize, as far as our work, as the state line.

Q. Did I understand you to testify that some land along the boundary of Colorado and New Mexico had been doubly patented.

A. Yes sir.

Q. What do you mean by that, and if so, would or would not the titles to the land be effected.

A. As I said before, the designation of a certain line as the boundary between Colorado and New Mexico doesn't make any difference is the way I look at it, regarding titles. There has been some lands doubly patented; that is in range 1 W., notably in the vicinity of Edith, Colorado; plats showing closures at imaginary line which was supposed to have been the Darling line, but which isn't the Darling line. Patents have been issued to several people in Colorado and likewise in New Mexico. The U. S. has given patents to entrymen to a point up here, (indicating on plat) approximately the Darling line; then in New Mexico patents have been issued to points approximately the Darling line; the result is a strip of land [fol. 849] which is covered by both patents. You will find the Carpenter line at a point north of both of these closures. Of course you have a piece of land there in controversy; there is no doubt but that both parties hold patent to it; that is something to be determined in the courts as to the ownership, but the fact of whether you call this line here which is approximately closed on by the New Mexico surveys the boundary line, or whether you call this Carpenter line up here, a quarter of a mile north, the boundary line, or whether you call the boundary line here at this imaginary line, it will not effect the position of these persons' holdings. They were given a patent by the U. S., and the fact that you move this line back and forth, you have their boundaries defined, they were given parts of certain sections; their patents don't state so much land a mile square south of the Carpenter or Darling line or the boundary line; they say certain subdivisions of certain sections in townships and ranges, so I don't see where any line designated as the state line will effect any titles.

Q. How do you explain the fact that these parcels were doubly patented.

A. Through erroneous survey.

Q. Did the fact of a difference in the survey of Carpenter and Darling have any effect; in your opinion, upon the doubly patent of the respective tracts.

A. Absolutely not a bit.

Q. Isn't it true that not only sections in the vicinity of the 37th Par. between Colorado and New Mexico, closed upon the Darling line, but also the surveys for counties, school districts, municipalities, voting precincts, have likewise been closed upon the Darling survey.

A. Of course in my work I know nothing of the surveys as to what has been done, except sections, that is, the work done by the general land office, but I will say that there has been a case up there which has been quite noted, of where there has been a misunderstanding and uncertainty as to the boundaries of municipalities and [fol. 850] counties. The town of Edith, which we used to call Edith, Colo., practically all of it lies south of the Darling line, but it is

well known that Edith precinct when it comes to voting was always voted in Colorado.

By Mr. Clancy: Including the part that is south of the Darling line.

A. Yes sir, the old original sawmill town always voted in Colorado, in Archuleta county.

By Mr. Keyes:

Q. Was that through a misunderstanding of where the Darling line was?

A. I don't know the cause, but I presume it was.

Cross-examination.

By Mr. Ramsey:

Q. Under whose instructions did you make the examination which you have testified about in your testimony in chief.

A. The technical instructions were issued by the Surveyor General of New Mexico and approved by the Commissioner of the General Land Office. The assignment instructions were issued by the Assistant Supervisor of New Mexico and approved by the Supervisor of surveys.

Q. Have you the instructions given to you by those officials.

A. No, but I think I could dig them up.

Q. After you made your examination, to whom, if anybody, did you make a report of what you discovered.

A. I filed my notes and report with the Surveyor General for New Mexico.

Q. Did you file them with the General land office of the U. S.

A. They eventually get there, but our procedure is to file them with the Surveyor General, who makes the plat and then forwards a copy of the notes.

Q. Are these tracts of land that you have mentioned, indicated by any particular number or group.

A. Which tracts do you mean.

Q. The ones you mentioned that you examined and investigated [fol. 851] and made a report on.

A. Yes sir.

Q. What group were they known by or number.

A. The metes and bounds tracts that I surveyed for entrymen and for patents in the various townships, all carry what we call a tract number; we connect them up with their serial number. Generally we number these claims starting in with tract No. 37 and carry them on up, 37, 38, 39, and connect that tract up with the name of the patentee or entryman, and also the serial number under which it is filed in the land office. They are identified in that way.

Q. This was not known as group 79.

A. Yes sir.

Q. Known to the general land office as group 79.

A. Yes sir, then Colorado has a joint survey, No. 93, I believe is their number.

Q. Didn't the instructions from the general land office in regard to group 79 specifically state that all closings of public surveys should be upon the Darling line.

A. I will look and see; date of instructions July 2, 1918. Under the heading 'limits and character of work' I find this paragraph "closing on the subdivisional surveys in T. 32 N. R. 4 W. in Colorado upon the reestablished Darling (Survey of the Colorado-New Mexico boundary line)." Next place where it speaks of that "closing of the subdivisional surveys in T. 32 N., R. 1 and 4 W. and 1 E. in New Mexico upon the reestablished Darling (survey of the Colorado-New Mexico boundary line)." Next paragraph, "survey the proper steps to mark the position of entries mentioned for future adjudication." A different survey is authorized by the commissioner dated March 20, 1917. There may be some more detail if you went further down.

Q. Did you make any report to Frank M. Johnson, Supervisor of surveys of your work.

[fol. 852] A. No.

Q. Was your work, if you state you reported to the general land office, ever acted upon in any way by that department.

A. Yes, it has been acted upon; in fact, here is a township where the survey has been accepted. Some have been and others are still in course of preparation, etc. I think all of them have been before the general land office and some of them have been back for minor corrections.

Q. This group 74 as shown on this plat that you have mentioned in your direct testimony, that's group 79.

A. Yes sir.

Q. This shows that the Carpenter line was abandoned.

A. Yes sir.

Q. Abandoned by whom.

A. I couldn't say.

Q. What is the meaning of that word abandoned after Carpenter line.

A. Means abandoned.

Q. Do you know when that Carpenter line was abandoned.

A. No, I presume—I couldn't give the date of it, no sir.

Q. Mr. Harrington, in 1902, at the time that the Carpenter survey was made, where was the boundary line between New Mexico and Colorado.

A. I couldn't tell you.

Q. Didn't none of the plats, maps or work that was done by previous government officials indicate to you where the line was.

A. You are having this case to determine where the line is.

Q. I am asking you where the line was in 1902, previous to the time the Carpenter survey was made.

A. There can only be one correct place for that line.

Q. Where is that.

A. I don't know; you have this suit to determine it.

Q. Don't you know where the boundary line between New Mexico and Colo. was previous to 1902.

[fol. 853] A. The same place it is now.

Q. Where was that.

A. I don't know.

Q. Wasn't it the Darling line.

A. The Darling line at that time was recognized by the land office as the line is now.

Q. It was so shown on plats, surveys, government records as the only boundary line between New Mexico and Colorado.

A. Yes sir.

Q. Isn't it a fact that so far as the federal government is concerned, and so far as the records of the general land office show, that the Darling line has continued to be the boundary line between Colorado and New Mexico since 1902 and prior thereto.

A. You put that pretty broad, the federal government. I can say the land office, as far as the general land office is concerned, of which I am an employe, has recognized the Darling line as the boundary line between New Mexico and Colorado since the time of the survey up to the present time with the exception of the brief period when they were recognizing the Carpenter line as the proper line as far as I know.

Q. Then from the time the Darling survey was made and approved in 1868 or 1869 up to the present day, the Darling line has been invariably recognized as the true boundary line between New Mexico and Colorado, as you say with one exception, is that correct.

A. As far as the land office is concerned, it has been recognized.

Q. Has the land office ever at any time recognized the Carpenter survey, a line established by him, as the true boundary line between the two states, and if so, when.

A. The Commissioner of the land office accepted the boundary line survey, so he must have recognized if to some extent; I don't know how far, but he caused surveys to be closed against it at some time during that period.

[fol. 854] Q. Has the general land office by any action in the way of orders, official instructions or records of any kind, recognized the Carpenter survey made in 1902 as the true boundary line between Colo. and New Mexico—was that ever done.

A. They must have recognized it——

Q. I am asking you to speak from your knowledge of what was done.

A. I know the commissioner of the general land office ordered two townships to be closed against the Carpenter line and I know that at that time the Commissioner regarded that as the boundary line between the two states, otherwise he would not have issued those instructions.

Q. Was such an order as that, if made, ever changed, and if so when was it changed.

A. I don't know that the order was ever changed; the commissioner of the land office later said—previous to the instructions of this group 79, said the land office would recognize the Darling line as the boundary line between the two states.

Q. Do you know how long after that that the order was made to close on the Carpenter line.

A. According to these instructions—two letters, March 15 and March 20, 1917 from the commissioner; those were the dates of the letters under which these surveys were directed to be made.

Q. It is a fact, isn't it, Mr. Harrington, that at the time that Colo. was admitted into the Union as a state, August 1, 1876, there was no such line known as the Carpenter line or survey.

A. Yes sir.

Q. The only boundary between the two states was that known as the Darling line, wasn't it.

A. That was the only surveyed boundary at that time.

Q. Wasn't it the only boundary in existence.

A. The boundary is really the 37th parallel; that was the only boundary line marked on the ground.

[fol. 855] Q. The only one marked on the ground.

A. Yes sir.

Q. When the Carpenter survey was made in 1902 was Colorado represented at the making of that survey that you know of.

A. I don't know.

Q. Was New Mexico represented.

A. I don't know a thing about it.

Q. Wasn't the Carpenter survey a purely ex-parte survey.

A. I don't know as to that; I don't know any of the details which lead up to the making of that.

Q. Then notwithstanding any defects or errors that may have been discovered or reported by surveys at any time, the general land at the time this suit was brought, and at the present time, recognizes and accepts the Darling line as the true boundary line between the two states.

A. Yes sir.

Q. Has New Mexico, so far as you know, by any action, taken either as a territory or as a state, ever adopted the Carpenter survey and line as the boundary line between the two states.

A. I don't know.

Q. Do you know the reasons that the Carpenter line as shown upon the plat you have referred to in your direct testimony was abandoned.

A. I know the reason in a general way, yes sir.

Q. Why was it.

A. I can answer that by saying that the reason was that the President vetoed the joint resolution of Congress accepting the survey.

Q. That was in 1908.

A. I am not certain of the date. I only know that from what I have learned.

Q. It is your personal opinion that it wouldn't make any difference so far as titles to land is concerned, whether the Darling line or the Carpenter line was recognized as the boundary line between the [fol. 856] two states, is that correct.

A. Yes sir.

Q. If the Carpenter line should be recognized as the true boundary line or decreed as such, a strip of territory which is now the state of Colorado would be added on to the State of New Mexico, wouldn't it?

A. I wouldn't say that because I would be deciding this suit.

Q. I said "if." Do you say it wouldn't make any difference?

A. New Mexico of course claims that the strip is theirs now.

Q. (First question on this page repeated to witness.)

A. I don't know, because I don't know where the boundary line is.

Q. There is a difference between the Carpenter and Darling line?

A. Yes sir.

Q. There is territory betwegn the two lines?

A. Yes sir.

Q. The Darling line is south of the Carpenter line?

A. Yes sir.

Q. Necessarily if the line was moved up further north, it would necessarily take off a strip from Colorado and put it in New Mexico, wouldn't it?

A. May be that line is north of the——

Q. I am not asking you to determine this suit; I said if the Carpenter line should be determined to be the line, wouldn't it take off a strip from Colorado and give it to New Mexico?

A. I don't know whether that territory belongs to Colorado.

Q. As I understand you, I want to be clear about this, as I understand you, you say the government land office recognizes the Darling line as the boundary line between the two states at this time?

A. Yes sir.

Q. If a change should be made and instead of recognizing the Darling line as the boundary line, the Carpenter line should be declared the boundary line, what would be the effect of that so far as ter- [fol 857] ritory is concerned. Would it take any off of Colorado or not?

A. The commissioner of the general land office might decide to recognize the Carpenter line next week, would that necessarily make the Carpenter line the boundary line right now between two states?

Q. If you will notice my question, Mr. Harrington, I base it upon the proposition that the Carpenter should be recognized as the boundary line, and so decreed as I stated.

A. If they decreed the Carpenter lin, as the proper boundary line, it always has been the boundary line, it wouldn't be taking—if this case is decided that the Carpenter line is the boundary, Colorado wouldn't be taking any land from New Mexico; there is where the line belongs or where it has been, so you wouldn't be taking any land.

Q. It wouldn't effect Colorado at all so far as land concerned?

A. It might, I don't know.

Q. How could it help from effecting them?

A. Of course if the Carpenter line is decreed as the boundary line between the two states it would dispossess them of land that belongs to New Mexico.

Q. Do you confine your statement that it wouldn't make any difference which of these two lines was made the boundary line to the mere matter of land titles; do you limit it to land titles, or do you go further than that and say it doesn't make any difference at all?

A. I mean land titles; what I meant before was land titles.

Q. If the change was made, it might make a difference as to whether a man's home was in the State of Colorado or the State of New Mexico, might it not?

A. As regarding the way things stand now, it might.

Q. It might make a difference as to where he voted might it not?

A. It might.

Q. Wouldn't it make a difference as to which state he had a right to hold office, in one state or the other?

[fol. 858] By Mr. Clancy: Objected to as entirely irrelevant he limited his statement to the effect it would have upon titles to land.

Q. Wouldn't it necessaraly change the county lines, election districts, voting districts, taxing districts, water districts, land districts, and court districts?

A. It might change the boundary line of them, yes sir; that is, wherever the state line is located, of course, it would be the line of jurisdiction between the two states.

Q. Wouldn't this also be true—might it not in a case of this kind, where a crime was committed be a question as to whether the courts of Colorado or the courts of New Mexico would have jurisdiction to try that crime?

A. If the Darling line is decreed to be the line, that is, the mark on the ground, that would depend upon which side of that the crime was committeed.

Q. It would effect a matter of that kind?

A. The moving of that line wouldn't make any difference.

Q. If the line was declared to be the boundary between the two states?

A. Suppose the Carpenter was declared to be the boundary line, then a crime committed south of that would necessarily be in New Mexico and north of it in Colorado, or if the Darling line, the same thing. You can move the line and after it is moved and established you di-n't have any trouble finding out what state it is in. You are having trouble all the time right now while this case is pending; a crime committed between the Carpenter and Darling line is a great uncertainty. In fact there was a crime committed on that strip and there is no doubt about that. But you get one or the other of these lines settled, then there is no more trouble.

Q. Have you any official instructions, orders or documents of any kind from the general land office at Washington in which the Carpenter line or survey is recognized or declared to be the boundary line between Colorado and New Mexico?

[fol. 859] A. I haven't in my own personal possession, but upstairs——

Q. I am asking if you have?

A. Not in my own personal possession but the files in the office have.

Q. At the present time, a taxpayer who lives in New Mexico below the Darling line is assessed for taxation in New Mexico, isn't he?

A. I presume so.

Q. If he is above the Darling line, he would be taxed in Colorado?

A. I don't feel that I am competent to answer all of these questions on the proposition of taxation. I might, for instance, state on this taxation matter, he is liable to be taxed any old place.

Q. If he was between the Carpenter line and the Darling line, and the Carpenter line should be decreed the true boundary line between the two states, then he would be taxed in New Mexico?

A. He should be, he might not be.

Q. That's where it would be proper for him to be taxed?

A. Yes sir.

Q. If the records of the General Land Office at Washington show that all public surveys in Colorado and New Mexico have been closed upon the Darling line with one exception, that of township 32, is that correct or incorrect; is that record right or wrong?

A. I can't tell that; the record is a record for what it is worth.

Q. I understood you to say that that was the fact except in two instances.

Q. Are you asking about the record or are you asking about the surveys? I don't understand the question. I will answer it if I can get what you want.

Q. Above question repeated.

A. I don't understand what you are driving at yet.

By Mr. Clancy:

Q. I think Mr. Ramsey is trying to ask you if there is more than one township of that class.

(Question repeated.)

A. I can't answer that question.

Q. Let me see if I understand you; you made a report of your [fol. 860] survey and investigations to the Surveyor general's office and it finally went to Washington to the General Land Office. Did you state that the general land office had accepted and approved your report?

A. Part of them, yes.

Q. This one here, about these two particular matters that you have been discussing. Did the general land office accept and approve your report on these two townships?

A. I never had anything to do with these. They were surveyed under contract.

Q. Did the general land office then accept and approve the report that you did make to them about your surveys and investigations?

A. I can look up the status of that; I know they accepted part of the townships; whether it has all been accepted I don't know, but I can find out.

Q. Whatever action the department, the general land office took upon your report and investigation, they have since that time directed that all public surveys be closed upon the Darling line, have they not?

A. I think it is generally understood, they have, yes sir.

Q. That is what they have been doing?

A. Yes sir, that's understood.

Q. Notwithstanding all that has been testified by you and other persons in reference to the line, the instructions now are to close public surveys on the Darling line?

A. Yes sir the instructions are that.

By Mr. Clancy:

Q. Mr. Harrington, I want to see if I understand just what you mean; you said that the establishment of the boundary line on the Darling line or the Carpenter line, or the recognition of either line, would not effect land titles. Let's suppose a case like this: that two surveyors surveying adjoining townships and through an error of one [fol. 861] or both, the man that surveys Sec. 1 in that township on the west overlaps into what ought to be Sec. 6 in the adjoining township, or *visa* versa, and both surveys on their face apparently good and are accepted and entries made and patents issued which would cover the same land by the descriptions because of that improper overlap. If I understand you correctly, your position is that as to these doubly patented lands up here in the vicinity of the southern boundary, would stand in the same position as these doubly patented lands would in case of a survey like that, and it would be a matter of the patents and would have to be fought out between themselves?

A. Yes sir.

Q. That whether the land that Roque Gallegos gets a patent for is norther or south of the state line, his title remains perfectly good and if another man has obtained a patent that overlaps on his line, it will be a legal question to be decided by the courts as to who owns the land.

A. Yes sir, what I intended to bring out all the way through, it doesn't make any difference what line you designated as the boundary line between Colorado and New Mexico, you can make a new line or anything else, it isn't going to effect the titles to any lands. That's what I want to bring out.

Adjournment taken until 10 A. M. following day.

By Mr. Clancy: I will offer in evidence those portions of the instructions to the Surveyor under contract No. 408 so far as they relate to township 32 N., R. 4 W. and T. 32 N., R. 7 E., and which the examiner will mark complainant's exhibit No. 18.

I also offer in evidence plat of the survey of township 32 N., R. 4 W. based upon the survey under the said contract No. 408 as appears by the certificate of the Surveyor General on the plat, which is to be marked complainant's exhibit No. 19.

[fol. 862] I also offer in evidence plat of the survey of township 32 N., R. 7 E., based upon the survey made under contract No. 408, and which is to be marked complainant's exhibit No. 20. Of these plats I will furnish copies to the examiner to be transmitted with the testimony as soon as I can get them made by the Surveyor General.

By Mr. Ramsey: Defendant objects to the introduction of complainant's exhibits Nos. 18, 19 and 20, upon the ground that the same and each of them are incompetent, irrelevant and immaterial to any issue in this case.

GUY P. HARRINGTON

Cross-examination by Mr. Ramsey continued:

Q. A letter dated July 6, 1918 from the Commissioner of the General land office to the U. S. Surveyor General at Santa Fe, N. M. states: "The line as established by Carpenter was surveyed without regard to the original Darling survey on the 37th parallel and the practical effect of the Carpenter line, if adopted, would be to remove a strip of land along the major portion of the boundary which includes several settlements and towns of importance heretofore under the jurisdiction of Colorado and add same to New Mexico." Do you agree or disagree with that state.

A. I agree with parts of it and disagree with part of it. I agree with the first part that the Carpenter line was surveyed without regard to the Darling line, but the latter part I disagree with.

Q. That it doesn't remove a strip of land from the jurisdiction of Colorado into New Mexico.

A. (After reading it.) Yes, I agree with that statement.

Q. According to the position of the general land office at Washington what was the proper closing line of all public surveys in Colorado and New Mexico as regards the boundary between the two states.

A. They first held that the Darling line was the proper one and [fol. 863] then for a time held that the Carpenter line was the proper line and then later and at the present time decided that the Darling line was the proper line upon which to make closings.

Q. At the time the resurvey or restoration of the Darling line was made by Wm. C. Perkins in 1917, and after his survey was reported to the general land office, that restoration of the Darling line was accepted by the land office, was it not.

A. Yes sir.

Q. That acceptance was made in July, 1918, wasn't it.

A. I will take your word for it; I don't know the exact date; I can find out—that's correct.

Q. And from that time on up to the present time, the location of the boundary by Darling, as reestablished in the survey made by Wm. C. Perkins, controlled in all matters of public land surveys and administrative purposes, did it not.

A. Yes sir.

Q. In the letter which I have heretofore referred to from the commissioner of the general land office to the U. S. surveyor general of New Mexico, dated July 6, 1918, is this statement: "It may be added that to re-establish the boundary at any other location excepting in its original position would cause complications and unduly disturb the legal titles to numerous parcels of land acquired in good faith." Do you agree or disagree with that statement.

A. Disagree.

Q. You take the position then that the commissioner of the general land office was wrong in that statement.

A. Yes sir; I am complying with the orders of the general land office in all my duties, but I have my personal opinion in regard to that; my opinion does not agree with the opinion expressed in that letter as regards effecting the titles to land.

Q. I believe you stated on yesterday, referring to the closing of [fol. 864] certain surveys mentioned by you, that they were probably fraudulent or some such language as that. What particular survey, if any, do you refer to in that statement.

A. Particularly to the closings of the survey in township 32 N., R. 1 West, Colorado.

Q. What surveyors do you refer to.

A. The surveyor who made the original subdivision of that township.

Q. Were they individual surveyors or government surveyors.

A. They were surveyors—that is, they had the title of deputy surveyors and probably surveyed that township under contract with the government. That was the usual procedure and I presume that was the case.

Q. Can you give the name or have you in mind any such surveyor that you think was guilty of fraud in closing his survey.

A. Do you mean—where.

Q. At the point you mentioned, T. 32 N., R. 1 W.

A. I can look up the names of the surveyors who made these; I don't recall their names and as to accusing them of fraud, I wouldn't necessarily do that; but I consider that the closing down there, it is my opinion, that the closing was fraudulently made on the Darling line; at least, erroneous. There might not have been any intent on the part of the surveyors to deliberately defraud the U. S., I am not making that statement, but nevertheless their closings were fraudulent and erroneous, as far as the boundary line is concerned.

Q. I understood you to say you made your examination and investigation of the surveys in this particular locality in 1919.

A. Yes sir.

Q. At that time, the conditions in the locality which you have testified about had all been examined by the Supervisor of surveys of the U. S. had they not.

A. The conditions had been examined by the Supervisor, and as [fol. 865] I remember Supervisor Johnson and Assistant Compton prior to the doing of this work.

Q. In restoring the Darling line, had necessarily been examined by Mr. Perkins. Mr. Perkins made the actual restoration of the line in 1917.

A. As a result of and under the instructions and general direction of Mr. Compton, assistant supervisor, who had been on the ground and made examination of conditions.

Q. After the examination of conditions along this Darling line in the vicinity you have mentioned by Frank M. Johnson, Supervisor of Surveys and his recommendations had been made to the general land office, and after the report of the survey made by Mr. Wm. C. Perkins in 1917, the general land office accepted the recommendations and report of the supervisor and of Mr. Perkins, did it not.

A. I believe so, yes sir.

Q. And by both of them the Darling line was recognized as the true boundary between the states of Colorado and New Mexico.

A. I don't know as to that, although correspondence will show; what is in those letters and that correspondence, they will show for themselves; I am not prepared to give all the detail.

Q. There has been no change made by the general land office with respect to the boundary line between the two states since you made your examination and investigation has there, in 1919.

A. Not that I know of, no sir.

Q. You don't know then whether your report was accepted and approved or disapproved, do you.

A. Yes sir, I looked it up yesterday evening.

Q. What did you discover.

A. I found that one of the townships, 32 N. R. 4-W. had been accepted. The remaining townships in question have not been accepted by the land office as yet.

Q. In complainant's exhibit No. 13 offered on yesterday, which is a letter from Frank M. Johnson, Supervisor of Surveys addressed to [fol. 866] Mr. Justice Frank W. Parker, Chairman of New Mexico Boundary Commission, Santa Fe, N. M. I find the following language: "It will be recalled that pursuant to authority of an Act of Congress approved March 2, 1867, (14 Stats. 466) E. N. Darling, U. S. Surveyor and astronomer in the year 1868 established a 37 parallel north latitude so far as it constitutes a boundary line between Colorado and New Mexico. Public surveys were closed thereon; lands were disposed of, rights were acquired and private and political boundaries were fixed in both Colorado and New Mexico, with consideration of the fact that the Darling line had been established and monumented as the northern boundary of New Mexico, adopted and ratified as the southern boundary of Colorado, and accepted by the federal government as the legal boundary between the two states." Do you agree or disagree with that statement.

A. Yes I agree with that.

Q. The same letter contains this language: "It would therefore seem and it is so held by the general land office in all matters coming before that office involving questions of jurisdiction, that the

Darling line of 1868, is the subsisting boundary line between the states." Do you agree or disagree with that.

A. I agree.

Q. The same letter contains the following statement: "Therefore, aside from every other consideration, the Darling line of 1868 by reason of the failure of confirmation of the Carpenter line of 1902 and 1903, is the subsisting boundary line between Colorado and New Mexico, and is consequently the proper closing line for public surveys in both states now, as it has been in the past." Do you agree or disagree with that.

A. I agree.

Q. At the time this letter was written in 1917, is it not a fact that the question of the closing of certain public surveys was then about to be undertaken by New Mexico in the vicinity of R. 1 E. and R. 1, 2, 3 and 4 West.

[fol. 867] A. I presume it was contemplated; it was later taken up, and probably contemplated at that time. It was a joint proposition, it was all handled by the land office, but included New Mexico and Colorado.

Q. After that time, after the date of this letter, August 3, 1917, the Darling line was recognized as the proper closing for the surveys to be made.

A. Yes sir.

Q. A letter dated March 24, 1900 from Hon. B. Herman, Commissioner of the general land office at Washington, to Hon. C. S. Thomas, Governor, Denver, Colo. contains this language, referring to the Darling line and the rights acquired thereunder, as follows: "which is the legal and vested right to hold to the line actually run for the state boundary, accepted as such and forming an unchangeable basis of land office plats, patents, deeds, tax roll, county maps, state maps and all other records of these localities." Do you agree or disagree with that statement.

A. I can't dope out to my own satisfaction just what they are driving at so I can't say whether I agree with it or not.

Q. In your work as assistant supervisor of surveys, do you get your instructions direct from the general land office at Washington or do you get them through the supervisor of surveys of the U. S.

A. As a general proposition through the supervisor of surveys, although some instructions come here direct from the commissioner of the land office, but ordinarily in this case I think the procedure is the supervisor receives a copy of the letter.

Q. In making a report of your work as assistant supervisor of surveys, do you report to the general land office direct, or do you report to the supervisor of surveys.

A. It depends on the class. If its matters of an administrative nature it is handled through the supervisor of surveys, but our reports of surveys, field notes and all official work in connection with [fol. 868] surveys are filed with the surveyor general of New Mexico who goes over the notes and prepares the plats and retains the original notes that are filed in his office, and copies duly certified by himself are forwarded to the general land office.

Q. Referring to the particular work which you did and about which you have testified, did you make your report to the supervisor of surveys.

A. Do you mean my field notes—they were filed with the Surveyor General for New Mexico.

Q. No report was filed with the supervisor of surveys.

A. There is only certain matters that go to the supervisor.

Q. I mean this particular group.

A. That I don't know; I don't know of any report except my weekly reports of progress and matters of that kind went to the supervisor of surveys. I don't know of any. Mr. Compton was then assistant at the time I made this survey and he may know of some reports he filed, but there was one report I will say, although it wasn't in connection with this group, that I made a report to Mr. Johnson; I recall that now, it was duly submitted through Mr. Compton, then assistant and forwarded to Mr. Johnson. It was a matter that developed in this same group in regard to the west boundary of the Tierra Amarilla grant. That is the only thing I remember that I did direct to Johnson, although there might have been some.

Q. This work done by you and about which you have testified as I remember was done some time in 1919.

A. Yes sir.

Q. Was it in 1919.

A. It was in the spring, along May and June.

Q. Was that before or after this suit was filed, do you remember.

A. I couldn't say; I don't know when this suit was filed.

[fol. 869] Q. I want to see if I get a clear idea about the ranges and sections about which you have testified; that is, as I understand, that particular locality there which you have described is known as group 79.

A. Yes sir.

Adjournment taken until 1:30 p. m.

Alonzo E. Compton, first being duly sworn, testified as follows:

By Mr. Clancy:

Q. What is your name and where do you reside.

A. My name is Alonzo E. Compton and I reside at 724 N. 4th St., Albuquerque, N. Mexico.

Q. Are you the same Compton who was formerly assistant supervisor of surveys.

A. Yes sir my services as assistant supervisor terminated last April.

Q. How long had you held that position.

A. About 9 years, or little over.

Q. Prior to becoming assistant supervisor of surveys had you been connected with the land department of our government.

A. I had, yes sir.

Q. For now long.

A. For 6 or 7 years prior to that date.

Q. Do you remember when your connection with the land office began.

A. About 1907 I believe, I took a contract for government surveys.

Q. I see here that on this plat you were doing work in 1907 or at any rate you made a contract in 1907.

A. Yes, sir, I did some work in the fall of 1907, closed down for the winter and I have been connected with the general land office ever since that time until last April, except a brief period one summer in which I did engineering work and reclamation work.

Q. Before 1907 what experience had you had in that kind of work, or education for it.

[fol. 870] A. I graduated as a civil engineer in the University of Valparaiso, Ind. I practiced engineering something over 8 years prior to that. I was county surveyor of Gasper county, Ill. for 8 years previous to taking up engineering work with the government.

Q. We have in evidence here what appears to be a report made by you of investigations as to overlaps along the Colorado-New Mexico state boundary in T. 32 N., R. 1 and 4 W. and 1 E. Did your work in connection with that investigation extend beyond these townships that I just mentioned.

A. No, not beyond those three ranges.

Q. Will you look at complainant's exhibit No. 10, which has been put in evidence here and tell me what you know about that diagram, if anything.

A. Well, that diagram was prepared by me or under my direction as the result of this investigation in range 4 west.

Q. This exhibit No. 10 shows what is marked as Colorado closings on a line some distance of a line which is marked Darling state line. Can you tell us whether there was any similar overlapping in the Colorado closings south of the Darling state line in any other township.

A. Yes sir that overlap extended through ranges 1 west and 1 east also in a more pronounced way it extended over. I won't say just how much further.

Q. You mean that in these other ranges the Colorado closings were further south of the Darling line than this one.

A. Yes, I believe they are and were further than those.

Q. I have here a plat of T. 32 N., R. 7 E. and another of T. 32 N. R. 4 W. which purport to be based upon a survey made by you under contract 408. Did you make the surveys on which these plats are based.

A. Yes sir, I did.

Q. Upon what line, as the boundary line between Colorado and [fol. 871] Mexico, did those surveys close.

A. They closed upon the Carpenter line by direction of the authorities.

Q. Do I understand that the instructions under which you executed these surveys directed you to close on the Carpenter line.

A. They did, yes sir.

Q. Do you know whether or not either of these townships or any part thereof were resurveyed so as to make a change in the closings on the state boundary line.

A. I believe that township 32 N. R. 4 W. was so resurveyed either to make new closings or to determine the status of certain homesteads there.

Q. Do you know whether or not any similar work was done as to T. 32 N. R. 7 E.

A. I don't know of any such procedure, I think not.

Q. I think as the easiest way to get at what I want, I will ask you, Mr. Compton, if you will compare this plat with the one which is in use in the local land office and see whether it shows the same facts as to that boundary line. Have you examined the plat that is in use for T. 32 N. R. 7 E. in the local U. S. land office.

A. I have.

Q. As far as that boundary line is concerned is there any difference between that and this plat.

A. None whatever.

Q. Did you ascertain if there was any other plat of that township there.

A. I didn't, I saw no other plat, however.

Q. So that as far as that office is concerned the land as shown on this plat is there subject to entry.

A. It is as far as I observed.

Q. As far as you know there were no other townships as to which the New Mexico survey was closed on the Carpenter line, aside from these.

A. Those are the only 2 townships that I know of closing on that line.

[fol. 872] Q. What can you tell us as to any overlapping surveys by Colorado and New Mexico surveys along that boundary line, if there were any.

A. They overlap each other in range 4 west, range 1 W. and 1 E. to my definite knowledge.

Q. Can you tell us what causes these overlaps in range 1 W. and 1 E.

A. Apparently they were caused by erroneous subdivisional closings.

Q. In 1 W. and 1 E. did the surveys purport to close on the Darling line.

A. They did, I believe, from both states.

Q. If there were overlaps, is it not obvious that they both did not close on the same line.

A. It is.

Q. How were those closings by the two states surveys respectively with regard to the actual Darling line as you found it.

A. Neither one of them were exactly on the Darling line as we found it but those closings from the New Mexico side were much

nearer the Darling line than those from the Colorado side, especially so in range 1 west.

Q. As I understand what you have already said, the closings of the Colorado surveys were at points some distance south of the Darling line.

A. They were.

Q. How far south.

A. I believe, I haven't it just definitely in mind, something like 17 chains.

Q. Will this report help you to state? being our exhibit No. 9.

A. I think these overlaps are summed up in this report somewhere, but I don't find them, except in R. 4 W., the Colorado subdivisions extended south of the Darling line, a position between 3 and 4 chains according to the findings of that preliminary report. In R. 4 W. at one point the Colorado closings are 11 chains 70 links south of the Carpenter position and 3 chains and 70 links south of the Darling line.

[fol. 873] Q. If I understand you your recollection is that in 1 W. they were somewhat further south of the Darling line.

A. Yes sir, they are in range 1 west, the overlap is about 20 chains; in 1 E. the overlap is about 17 chains according to the measurements made by me in that preliminary report.

Q. I believe you said the New Mexico closings were nearer to the Darling line than the Colorado closings.

A. Yes sir.

Q. How near were they, approximately, if you can remember.

A. Within a few links of the Darling positions as we found it in 1 E. Further east there was more error, however, and when we got over to the principle meridian between ranges 1 west and 1 east there was considerably greater discrepancy; that is, the New Mexico closings didn't follow so closely the Darling position, passing a little north of it.

Q. To what do you attribute the failure of the surveyors to make their closings on the actual Darling line.

A. I attribute it to the lack of definite locations when they made their surveys.

Q. May it have been due to the fact, if it is a fact, that the monuments and markings of the Darling line had disappeared or didn't exist.

A. Yes sir, I think that is the explanation of it mostly.

Q. Do you remember about when these Colorado and New Mexico surveys were made.

A. I don't, they are a matter of official record.

Q. They were made long before you had anything to do with that region.

A. They were, but both surveys are much in evidence on the ground.

Q. Did you find on the ground any evidence of the intersections with the Darling line in these surveys.

A. We found some closing corners from both sides.

Q. But did you find any evidence that any of these closing cor-
[fol. 874] ners were actually on the Darling line.

A. Only by projecting the Darling line east and west we found that some of these closing corners of the subdivision surv-ys from the New Mexico side were very close, within a few links; others more erratic. These measurements, I believe, are all a matter of record also. Several closing corners for the New Mexico subdivision were found, also some closing corners for the Colorado side, and upon these, together with the purported holdings based on them, we measured and reported these overlaps and conflicts.

Q. In which township is Ewell Canyon, the point where the Darling line goes through that canyon.

A. Mostly in range 1 E. The mouth or lower part of Ewell Canyon closes from R. 1 E. into 1 W. just at the Darling line. This canyon flows in a northwest direction.

Q. It is a fact then that the meridian crosses the Ewell canyon quite near where the Darling line ought to have crossed it.

A. Yes, they intersect right in the canyon, near the bottom of the canyon. The peculiar fact is noted, however, that the principle meridian from that point north through Colorado is about one mile west, being a job of one mile in the principle meridian.

Q. In the course of your work did you find any evidence that Darling had actually crossed the Ewell canyon with his line, and if so, at what point.

A. There was no evidence except that of the topographical feature; no signs of his crossing.

Q Have you ever had occasion to make any examination of the attempt at restoration and resurvey of the Darling line by Wm. C. Perkins in 1917.

A. I was present on the ground, a portion of the ground with Wm. C. Perkins in the re-establishment of this boundary line. I saw the line being measured through 1 E. and 1 W. and from a point beyond 1 E. also part of the time in R. 4 W. during the survey and
[fol. 875] restoration of this line.

Q. Is it a fact that Mr. Perkins in his attempt to restore the Darling line began about the 203 mile.

A. It is.

Q. And he attempted to re-establish the line from there running west.

A. Yes sir.

Q. Is it or not a fact that there is no continuous line recorded by Darling between his ast. mon. No. 6 and his monument No. 7.

A. Yes I believe there is a continuous line recorded by Darling, but there seems to have been some error in his work; there seems to have been a jog somewhere between his 6th and 7th ast. mon.

Q. Did you ever see a stone at or near the bank of the Navajo River which was marked Ast. Mon. No. 7, but which is a considerable distance south of the Mon. No. 7 as identified and restored by Mr. Perkins.

A. I did observe such a stone about 30 chains south of the identified and restored 7th monument, but the markings—I cannot state

offhand what the markings were, but I think they are recorded in my report.

Q. Do you know whether or not that stone that you say you remember having seen was on a prolongation to the westward of Darling's line as his record shows it, up to the east brink of Ewell canyon.

A. It was. This small stone which I have recorded here as being marked Sta. No. 7 was almost due west on the Darling line as projected west from his 203 mile corner, where the bearing tree now exists. This small stone, however, was covered up under the ground with some stones on top of it.

Q. That stone was something like 30 chains, I think you said, south of the monument No. 7 as identified by Mr. Johnson and later by Mr. Perkins in his restoration survey.

A. Yes sir, this stone was 30 chains and 24 links south, and 24 chains and 65 links west of the position for the Darling ast. mon. [fol. 876] No. 7, as anticipated in this report. There may have been a few links variation in the final monumentation of the line and setting of the 7th astronomical monument.

Q. As you recall, does Darling's field notes show any line connecting his monument No. 7 with the 206 mile corner which was the last one you could identify east of Ewell canyon.

A. I think his record shows a continuous surveyed line.

Q. Connecting with that monument No. 7, which is near, as you say, near the base of Cemetery Hill.

A. Yes sir, the true location for monument No. 7.

Q. Would you say that, notwithstanding the fact that a prolongation to the west of his line to the 206 mile corner is more than 30 chains south of his monument No. 7.

A. It is. His prolongation westward falls about 30 chains south of the monument No. 7.

Q. Then where is the connection between the 206 mile corner and his monument No. 7.

A. The Darling survey does not recognize or record any jog or any error in that line. The Darling survey runs first westward on a blank line to a point near his 7th ast. mon. His field notes record that he determined the true meridian and set a monument called the 7th; he then made an attempt to monument his line back to the 6th ast. mon. and perhaps only partially completed the job.

Q. In his notes he says he corrected the line back east to 191 mile corner. Wasn't that 191 mile corner on the west side of Ewell canyon.

A. No, I think that was considerably east of Ewell Canyon. That canyon was near the 212 mile and the 6th ast. mon. was the 182 mile.

Q. You say that the Ewell canyon is about what mile.

A. Near the 212 mile point.

Q. When he connected that line, as he states, back to the 191 mile can you find in his notes anything to indicate where or how he [fol. 877] crossed Ewell canyon. Have you ever looked for that.

A. I am not prepared to answer that. It is a matter of official record.

Q. This is a printed copy of his notes which I assume to be correct because my Colorado friends have offered it as a correct copy, and what I want is evidence in his record of how or where he crosses that canyon on his correction of the line running east from monument No. 7.

A. This says he ran west from No. 6 ast. mon. on the 182 mile, giving topography as he proceeds; at 80 chains he made his offset from the tangent and set the 183 mile corner; thence running west on his 184 mile, giving topography, at 80 chains he makes an offset from the tangent and sets a stone for the 184 mile; thence running *running* west on the 185 mile, giving topography, and at 80 chains makes the offset from the tangent and sets a stone for the 185 mile; thence runs west on the 186 mile, giving topography, and at 80 chains makes his offset from the tangent and sets a stone for the 186 mile; thence runs west on the 187 mile, giving topography, and at 80 chains makes his offset and sets a stone for the 187 mile; thence runs west on the 188 mile, giving topography and at 80 chains sets a corner and so on in the same way, giving topography and setting corners where possible.

Q. Until he appears to reach monument No. 7

A. No, up until the 191 mile where he sets a corner for the 191 mile.

Q. Doesn't it seem to be a continuous line

A. From the 191 mile he continues west on the 192 mile, giving topography, but at the 80 chain point he measures his distance north from the tangent and sets a temporary corner, the first one he has set up to this point. He then runs west on the 193 mile and sets a temporary corner at 80 chains; then the 194 mile he sets a temporary corner and keeps that up through the 195, 196, 197, 198, 199, 200, [fol. 878½] 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, and on the 212 mile at the 79 chain point he notes a canyon 1,000 ft deep, bearing northwest, which we take to be Ewell canyon; continuing at the 80 chain point he says there was a bluff impossible to set a corner, so he proceeds further and sets a temporary corner; on the 213 mile he sets a temporary corner; 214 mile says impossible to establish a corner; thence west on the 215 mile, giving topography, Navajo River, etc., and at 25 chains and 30 links on his 215 mile he says he makes his offset from his tangent up to this ast. mon. No. 7; witnesses compare his chain with the standard and find it correct. He says, thence I correct the line back east to the 191 mile; the 191 mile was the last permanent corner he had set. He therefore makes the statement I correct the line back east to the 191 mile corner, a distance of 23 miles, making a correction of 3.22 links per mile as though he had measured back the entire distance to the 191 mile, but we, as engineers on the ground, believe, and find evidence to bear it out, that Darling actually never did go further east than Ewell canyon and that there is a jog in his line at Ewell canyon; that he perhaps monumented his line all the way through as he went on his temporary line, if he monumented at all, or did it as he went through thinking he was right when he arrived at the 7th monument taking observation for the 37th parallel and found that he

was 30 chains and 35 links too far south. We believe that Darling thence proceeded east and corrected his line, set monuments north for 2 or 3 miles back to Ewell canyon but that he went no further.

Q. That's what Perkins' theory is and Johnson's too.

A. Yes sir, the story is he admitted it. I have found in my official position in the public land service in following other two surveyors that in running through that kind of country, the surveyor will sometimes or often monument his line as he goes, thinking he is very close to the true position and will avoid a return over the line. We presume and believe and have evidence to show that Darling [fol. 879] did this in the same way, monumenting his line as he went and then corrected back a few miles from the 7th monument, but not going the entire distance.

Q. So that his line, as far as he went with it, cast back from the monument No. 7, was something over 30 chains north of the line he had previously run coming from the east.

A. Yes, sir, that is correct.

Q. As far — you can discover, he never brought these two lines together.

A. No, he never did make the correction back as he should all the way. No doubt those points he marked temporary points from the 191 mile up to Ewell canyon were actually monumented by him and were never changed.

Q. I think I now have a better idea of the course Mr. Darling must have taken than I had before. In your report, Mr. Compton, which has been put in evidence as complainant's exhibit No. 9, in speaking of townships 32 N., R. 1 and 4 west and 1 east, you say that while the final township surveys are easily identified and appear to be rather faithfully executed except in the matter of erroneous closings on the old Darling state line, you then add "These erroneous closing being no doubt largely due to the very erratic and poorly marked Darling line". Are you still of the same opinion as to the character.

A. I am in this locality.

Q. I wouldn't suppose you would speak of any part but that with which you had actual contact.

A. No, I think the ground is thoroughly covered. I was speaking of these 3 particular townships. I would say, however, that the word erratic applies more truly to range 1 west and 1 east than it does to range 4 west, because there is no evidence of a corrected line or jog line in range 4 west, and absence of monuments may have, and perhaps would have been, a more faithful description of the [fol. 880] two places, because the closures have mislead the surveyors.

Q. R. 4 W. would be quite far away from Ewell canyon.

A. Yes, sir, 20 or 30 miles.

Q. As far as you have had occasion in your work to come in contact with the Carpenter line, what, if anything, can you say as to the character of that line.

By Mr. Ramsey: Defendant objects to the question and any answer thereto on the ground that same is irrelevant, incompetent and immaterial to any issues in this case.

A. My observation of the Carpenter line has been that it was well monumented, the monuments being iron posts much in evidence, that the alignment was good, that the measurement was not as good or as correct as should have been expected from this survey.

Q. Mr. Compton does anything else occur to you which would throw any light upon the controversy here, or be of any benefit to either side; if so, tell us about it.

A. I don't feel competent to offer any suggestions in a general way. So far as my observation of the two lines has been, excepting this jog near Edith, Colo., near the Ewell Canyon, the alignment in both surveys is fairly good; the measurement in neither one is not as perfect or quite up to the standard you would expect from the state line survey; the alignment of the Darling survey so far as I have observed it except the jog at Ewell canyon is good, and that of the Carpenter survey is perhaps excellent.

Cross-examination.

By Mr. Keyes:

Q. I understand, Mr. Compton, from what you have just stated, that excepting the jog in the Ewell Canyon, the alignment of the Darling survey is good. Is that correct.

A. Yes sir, not perfect, but what we would call good in that mountainous country, except the jog at Ewell Canyon.

Q. I also understand from your testimony that the measurements of the Carpenter survey are not as good as should have been expected.

[fol. 881] A. Yes, sir, that is correct.

Q. Does this survey along the line of the 37th par. in the vicinity of Ewell Canyon go through a rocky and mountainous country.

A. Not exactly; Ewell Canyon is a deep canyon, steep slopes, almost 1,000 feet deep, but not to- deep for timber to grow on most of the places. Numerous canyons in this country, it rains often. There are roliing mesa lands which are difficult to get up on but not so difficult to traverse after you get on top. They are heavily timbered.

Q. Is a part of the country along the 37th Par. between the 2 states high and mountainous with extreme variations of altitude?

A. Rather, yes sir.

Q. Does this add to the difficulty of surveys?

A. It adds to the labor but I should say it is no impediment to a correct survey, except in certain astronomical observations.

Q. In astronomical observations it would be an impediment, without doubt owing to the difference in the intensity of the earth's crust.

A. Owing to the swing of the pendulum or plumb line it offers a diffculty.

Q. You have testified concerning complainant's exhibit No. 10, which purports to show overlapping conflict along the Colorado and New Mexico state line in T. 32 N., R. 4 W. Is it not true that all of the Colorado closings at that point purport to close on the Darling survey and line.

A. I think the record so shows.

Q. Is it not also true that the New Mexico closings purport to close on the Darling line.

A. No, sir, the New Mexico closings purport to close on the Carpenter survey in range 4 west. I had the distinction of making that survey myself 15 years ago.

Q Since that survey, however, in T. 32 N., R. 4 W., there has been a re-survey and closings are now upon the Darling line.

[fol. 882] A. Yes, sir; I think that is right.

Q And the Carpenter line has been abandoned, so far as the general land office is concerned.

A. I think you are right.

Q. So at the present time the Darling line is the only line recognized as the boundary between Colorado and New Mexico by the general land office.

A. I cannot state for the general land office except in ranges where I have had work and have been instructed by them.

Q. Are you familiar with the letter of July 6, 1918, by the Commissioner of the General Land Office to the U. S. Surveyor General at Santa Fe, in which he states that notwithstanding the different locations of the monuments which were supposed to have been established upon the 37th Par. of latitude, this office is of the opinion that for all administrative purposes the line established by E. N. Darling in 1898, wherever its location can be identified beyond a reasonable doubt should be recognized as the boundary line. This view is now reaffirmed and the location of the boundary by Darling as re-established, in the current survey will accordingly control in all matters of public land surveys and administration for the following reasons, giving reasons.

A. I think I have read that letter.

Q. It is true, then, is it not, that the Darling line is now recognized in all matters of public surveys and administration as the boundary line between Colorado and New Mexico.

A. It seems to have been under that particular administration. I have noticed a change in the general land office from term to term part of the time recognizing the Carpenter line, and of late they are reocgnizing the Darling line.

Q. Is it true there was only one period in which the Carpenter line was at all recognized by the general land office and that was for a short period following the survey of Carpenter, and ending a [fol. 883] number of years ago.

A. I think so, yes sir.

Q. And wherever in the instance the Carpenter line was even temporarily recognized, it has now been abandoned and the Darling line has been re-established.

A. I understand so, that the general land office had no other legal line to administer affairs upon; in this statement it says it is recognized for administrative purposes.

Q. That's all purposes so far as surveys, location of patent and entries of public lands.

A. Yes, sir.

Q. As a matter of fact, under that ruling of the general land office, surveys for all patented lands were closed upon the Darling line.

A. Yes, sir.

Q. Is it not true that along the line of the 37th Par. between Colorado and New Mexico, there are probably scores, and perhaps hundreds of patents issued to lands.

A. Yes.

Q. And these would close upon the Darling line?

A. With some exceptions, perhaps.

Q. There might have been 2 or 3 instances during the interval of time that the Carpenter survey was recognized in 1 or 2 townships.

A. There are 2 or 3 instances where patents closed on the Carpenter line.

Q. But those would be the exceptions.

A. Yes, sir.

Q. You understand that the Darling line was made about 1868 and approved 1869, do you not.

A. I do.

Q. And that in 1876 when Colorado became a state, the boundary between the two states was what?

A. I presume it was the Darling line.

[fol. 884] Q. And that has continued without interruption for a period of about 52 years, with the exception indicated before, or from that time until the present date.

A. Yes with the exception noted for a brief period when the land office recognized the Carpenter line. There is this point I might mention, however, which comes under my observation in closing on this line, that in very few places doe- the closing corners actually fall on the Darling line. They were intended to fall on the Darling line but by close measurements they are found either one side or the other.

Q. Practically all of the closings in New Mexico purport to be on the Darling line.

A. Yes, except those for that period.

Q. Since then there has been the restoration.

A. The only restoration since that time that I am aware of has been in ranges 1 and 4 west and 1 east.

Q. The only ones that ever purported to close on the Carpenter line were those, were they not.

A. Yes sir, and 7 East.

Q. And consequently the restoration has been simply for those who formerly purported to have closed on the Carpenter line.

A. Yes sir.

Q. So that now the line recognized is the same line that was recognized in the beginning, the Darling line.

A. Yes I understand and from my association with the general land office for 9 years, there was never any official approval of the Carpenter line, therefore the general land office has no other policy and could have no other policy than to follow the line which had received legal approval or sanction.

Q. Which was the Darling line.

A. Yes sir.

Q. This was likewise the original line and survey of the boundary [fol. 885] between Colorado and New Mexico.

A. Yes it was the first.

Q. Complainant's have offered exhibit No. 19, same being fractional township 32 N., R. 4 W., purporting to close upon the Carpenter line. Is it true that since the survey of this township, being complainant's exhibit 19 introduced by them, there has been a resurvey and restoration of the Darling line and abandonment of the Carpenter line.

By Mr. Clancy: That's merely repetition; Mr. Compton has already said that was so.

A. Yes by the general land office.

Q. This means then, that the survey T. 32 N., R. 4 W., which is complainant's exhibit 19 has been officially rejected by the general land office and that there has been substituted in place of it the plat showing the Darling line as the boundary between the 2 states.

A. I think that is right.

By Mr. Ramsey:

Q. Mr. Compton, the locality about which you have testified, as I understand it, was between Ast. Mon. 6 and 8, was it now.

A. Yes a greater portion of that distance.

Q. Your examination was confined to this particular locality.

A. Well, yes this particular examination was confined to this locality. I have spoken of other ranges where——

Q. Of course, at the time you made your examination, that was many years after the Darling survey was made, was it not.

A. Yes, about 45 years, I believe, or over.

Q. As to what was originally done by Darling in that locality you had to reach your conclusions from the evidence upon the ground at that time, did you not.

A. Yes sir.

Q. What corners and monuments may have been originally established by Darling and had been obliterated or destroyed or missing. [fol. 886] of course you are not able to state.

A. Well, yes, we found a few corners only, we found the greater portion missing.

Q. Did you find any evidences in that particular locality of surveys or evidences of work done by private or individual surveyors.

A. Yes, we did.

Q. What did you find in that particular

A. We found, for instance, that Engineer Burwell had retraced a portion of the Darling line from the 5 Ast. Mon. eastward and had set two monuments which are still in existence there and which we found were on the Darling position.

Q. Then whatever may have appeared upon the ground or what evidence there may have been of the Darling line as originally established there was enough appearing at the time that you made your examination and also at the time of the examinations made by other government surveyors or officials, to make it possible to re-establish and re-locate and restore the Darling line, was there not.

A. There was, except that in one little breach or gap near Ewell Canyon. It is a question of, you might say, theoretical location, bringing two points together. We have positive evidence of his line and history of it in the way of topography and corners from the 203 mile corner over to Ewell canyon; there we lose the trail across the canyon; then from the 7 ast. mon. going back eastward there are many topographic features which are conclusive to the engineer for that 2 or 3 miles between those 2 points, there is an old trail which we connected. There is a little room for speculation there for a different method of re-establishing, but of no particular contention perhaps.

Q. I believe you have stated that even where you couldn't find a corner or monument, that the running of the survey made by Darling was described by giving topographic conditions.

A. This was true in many places; it is a fact, however, that for con- [fol. 887] siderable distances west of the 7th ast. mon. we didn't rely entirely upon topographic features; in fact we connected the 7th ast. mon. with the 8th by true curve, and this fixation was corroborated, I would say, perhaps, referred to in places by the topographic features; not corroborated precisely, but roughly, and from the standpoint and practice of the general land office, definite corners on straight lines are connected by straight lines or curve lines, and that is what was done there.

Q. There was sufficient evidence obtained by which Darling's 7th ast. mon. was located, was there not.

A. Yes there was conclusive evidence to engineers that this 7th monument is fixed within a very narrow limit, even less than a chain no doubt.

Q. Then isn't it a fact that as a matter of practice, monuments control over courses and distances.

A. Yes with the general land office and I believe with the law.

Q. Then it would be possible to run the line from his ast. mon. No. 7 back to the last established known corner, would it not.

A. Yes it would be logical and possible; if no other evidences appeared it would be logical.

Q. There were many more difficulties to encounter in making a survey of that character in 1868 than there were in 1902, or would be at the present time, would there not.

A. Yes, without doubt.

Q. Are you able to state, Mr. Compton about when it was that the closing in range 4 which was made on the Carpenter line was afterwards changed to close on the Darling line.

A. It has been in process of change since this examination in 1916. It has been under consideration, but I believe it was approved just recently by the general land office.

Q. Is it a fact, or do you know whether or not Carpenter in making his survey destroyed and obliterated a number of the corners and [fol. 888] monuments of the Darling line.

A. It is recorded by him in his official field notes that he did destroy all the corners he could find. However, he didn't succeed in getting all of them.

Q. At the time you made your examination in that particular locality you mentioned, was after Carpenter had made his survey and had destroyed these evidences of the Darling line.

A. Yes sir.

By Mr. Clancy:

Q. I think one answer which you made to a question by the Attorney General of Colorado might possibly be misleading. You made a survey of T. 32 N., R. 7 E. in 1907, in which, under instructions as you have already stated, the closing of the survey was on the Carpenter line.

A. I did, yes sir.

Q. Has there ever been any re-survey of that township, or restoration as the Attorney General has stated, of the Darling line.

A. Not to my knowledge. There had been nothing done when I quit my post in April of this year; whether or not this has been withdrawn from entry in this township along the state line or not, I don't know. The records of the land office will show that.

By Mr. Keyes:

Q. But you do know in any event from official communications that in all matters of public survey the Darling line is now recognized as the boundary between the states.

A. By the general land office, it is. I would add there, if you please, this statement. I cannot speak for the individual opinion or opinions of the general land office as to whether the Darling line is the correct line or not, but I do know that is the one line they recognize or can recognize as having legal status.

Witness excused.

[fol. 889] STIPULATION RE EXHIBIT

By Mr. Keyes: It is hereby stipulated by the parties hereto, that a certified statement of facts by the Surveyor General of New Mexico of an official of his office, as to section and township surveys, or by the Register or Receiver of the General Land Office, at Santa Fe

New Mexico, as to public land entries or patents in the vicinity of the 37th parallel, north latitude, between 103 and 109 meridian, may be admitted in evidence without further authentication as exhibits of defendant.

UNITED STATES OF AMERICA,
State of New Mexico,
County of Santa Fe:

EXAMINER'S CERTIFICATE

I, Ethel F. Stevenson, duly appointed examiner in the above cause, do hereby certify that the foregoing 59 pages of testimony, constitute a true and correct transcript of the notes taken by me in said cause.

Ethel F. Stevenson.

[fol. 890] PLAINTIFF'S EXHIBIT No. 11

4-207

1,025,565. "E.". JAD.
M. E. 468,994.

Department of the Interior. E. F. D. B.
General Land Office,
J. A. D. Washington, February 8, 1922.

I hereby certify that the annexed photographic copy of the field notes of the examination of surveys Colorado-New Mexico Boundary line between the 274th and 287th mile corners, east boundary Southern Ute Indian Reservation by Frank M. Johnson, Special Agent, in 1899, is a true and literal exemplification of the official record of said examination on file in this office.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

Geo. R. Wickham, Assistant Commissioner of the General Land Office. (Seal of United States General Land Office.)

[fol. 891] Report Examined. In Office Letter Mar. 19, 1900.
A. W. B.

Rec'd with letter from Frank M. Johnson Exam' dated March 2, 1900. 29068/1900.

4—679a

Field Notes of the Examination of Surveys Colorado-New Mexico B'd'y Line Bet. the 274th and 287th Mile Cor. East B'd'y Southern Ute Indian Reservation. Executed by E. N. Darling, 1868, and Tyler & Medary, 1881, U. S. Deputy Surveyor, Under Contract No. —, dated —— —, 189-, as Examined by Frank M. Johnson, Special Agent.

Examination State B'd'y commenced Nov. 2d & completed Nov. 7, 1899.

Examination E. B'd'y Ute Res. commenced Nov. 23d & completed Nov. 24, 1899.

[fol. 892] Names and Duties of Assistants

C. R. Caudle, Chainman.
V. S. Barber, Chainman.
W. A. Smith, Flagman.

Certificate

We hereby certify that we assisted Frank M. Johnson, Special Agent for the examination of surveys, in examining surveys in Colo. & N. M., under contract No. —, as follows: Colo.-N. M. Bdy. Line, E. Bdy. S. V. & R., and that said examination has been in all respects, to the best of our knowledge and belief, well and faithfully made, according to the instructions furnished by the Commissioner of the General Land Office.

C. R. Caudle, Chainman. V. S. Barber, Chainman. W. A. Smith, Flagman.

Subscribed and sworn to before me this 24th day of November, 189-. Frank M. Johnson, Exam. Surveys.

[fol. 893] Examination Colo.-New Mex. Line Bet. 274 & 284 M. Cs.

The examination of the Colo.-New Mex. boundary line between the 274th and 287 mile corners, began Nov. 2d, 1899, and executed with a Young & Sons light mountain transit No. 6556. The horizontal limb is provided with two double venniers placed opposite to each other and reading to single minutes of arc, which is also the least count of the venniers of the latitude and declination arcs. I examine adjustments of the instrument and correct small errors in level and collimation then in order to test the solar apparatus by comparing its indications resulting from solar observations made during a. m. and p. m. hours, with a true meridian, determined by observations on Polaris. I proceed as follows:

Nov. 1st at 3.05 p. m. l. m. t. I set off 37° W. on lat. arc and 14° 35′ on dec'l arc and determine a true meridian with the solar, marking a point in this meridian by a tack driven in a plug 5 chs. N. of my station on the S. B'd'y of Colo.

Nov. 1st, '99.

Nov. 2d 1899 at 4.27 a. m. l. m. t. I observe polaris at western elongation in accordance with the manual of instructions.

At 8.20 a. m. l. m. t. I plug off the azimuth of polaris 1° 23′ to the east and mark a point on the meridian thus established by a tack on the plug 5 chs. N. of my station on the S. b'd'y of Colo.

I now set off 37° N. on lat. arc and on dec'l arc and de-
[fol. 894] termine a true meridian with the solar, marking a point on this meridian on the plug already set 5 chs. N. of my station.

The solar apparatus by a. m. & p. m. observations defines positions for true meridians about 3″ and 5″ west and east respectively of the meridian established by polaris observations.

The mag. bearing is 13° 31′ E.

I locate a post (evidently cedar) set in mound of stone, marked "C" on N. "N. M." on south, "1868" on east and "284" on west post is 5 in. sq. & projects 3 ft. above ground. The notes of E. N. Darling record a marked stone beneath post. I dig 3½ ft. beneath the surface but can find no stone. I assume this to be the 284th mile corner and run east. Over rolling country, scattering tim.

4.00 Ascend con.
11.50 Summit of spur of ridge slopes to south.
15.00 Base of spur N. & S.
21.00 Irrigation ditch S. 30° W.
21.40 Wire fence N. & S. Ent. field.
52.40 Leave field N. & S. Ent. brush.
51.40 Right bank of Rio La Plata 30 lks. wide, course S. Leave brush.
60.60 Wire fence N. & S.
60.80 Road N. & S.
73.00 Ditch S. 20° W.
75.25 Ravine S. W.
80.13 A stone in a small mound of rocks, (not marked) bears 5 lks. S. of line. I cannot identify this as the 283 mile corner.

I continue east over holling country; no timber.

9.60 Arroya 10 ft. deep S. 30° W.
23.30 Road N. E. & S. W.
37.10 Ent. scat. timber. Ascend.

53.00 Base of sandstone ledge N. E. & S. W.
54.40 Summit of bluff.
80.72 A sandstone on steep slide to north 30 x 14 x 4 ins. marked
[fol. 895] "68"—"N. M." and "C" on 3 faces; the face scaled off. I find no other evidence. This is undoubtedly the 282 M. C. stone.
I locate a 1/16 cor. established by Tyler and Medary in 1873, a cedar 14 in. diam. marked 1/16 on west; blazed on 4 sides. A growth of 17 rings overlap blaze. I commence at this tree corner and run N. on true line.
9.10 Stone just described as 282 M. C. bears west 63 lks.
I continue my line east.

NOTE.—As no items of topography are noted on this the 281st mile, and as it is the purpose of this examination to determine which is the true b'd'y line, as surveyed by E. N. Darling in 1868, I will simply consider the points described in the original field notes.

80.03 A s. s. 20 x 10 x 4 on surface of ground, and a few stones forming a loose mound.
The s. s. marked, very indistinctly, "N. M." "568" and "281" on three faces.
I search for marked stone 3½ ft. underground but find no trace of it.
A standstone bluff bears N. 35° 10' E.
A sandstone bluff bears N. 30° E.
A peak in the La Plata mts. bears N. 5 E. as described in the original survey.
Although I believe this to be the 281 M. C. I do not consider it to be sufficiently identified. I therefore continue East.
7.00 Dry bed of a small creek 12 ft. banks, course S. E.
15.50 Arroya 20 lks. wd. course S. 30° E.
31.00 Ascend cinder buttes 250 ft. End Etat. tim.
31.00 Top. Enft. high rolling country.
77.80 Drain course South.

[fol. 896] A coal bank about 25 ft. thick is exposed here on the west bank of the drain. Ascend.

80.16 A standstone about 4½ ft. x 3 ft. x 1½ ft. above ground, in place, marked with a "×" on top, "C" on north "N. M." on south, "1868" on west and "280 M." on East; bears S. 8 lks
This is a standstone in place agreeing in every particular with the deputy's description with the exception of the "×" marked on top. The topography of this mile I find agrees very closely with the original notes. I consider this 280 M. C. fully identified.

Nov. 2d, 1899.

Nov. 3, 1899 at 8 a. m. I set off 37° N. lat. arc and 15° 10′ S. on dec'l arc and determine a true meridian with the solar at the point partially identified as the 284 M. C. Nov. 2d '99. Thence I run West on the 284th mile over rolling & broken country. Descend gradually.

3.00 Base of hill N. W. & S. E.
10.50 Dry arroya S. E. Ascend grad.
16.00 Ascend 70 ft. hill N. & S. Ent. cedar and pinon timber.
19.60 Small ravine N. E.
22.70 Summit of ridge N. & S.
23.00 Descend abruptly N. & S.
29.80 Dr. N. E.
33.50 Ridge N. 20′ E. & S. 20′ W.
35.40 Dr. N. 20° E.
37.60 Ridge N. & S.
40.50 Dr. N. E.

[fol. 897]

42.50 Top of ascent, Thence over mesa.
48.55 Road W. & S. E.
59.00 Sandstone ledge descend 30 ft. N. W. & S. E.
60.00 Dr. S. E.
80.00 Set stake for temp. 285 mile corner I find no evidence whatever of cor. rock, mound or pits.

The only two objects, or rather items of topography, noted on this line, in the original notes agree with the results of my work.

I continue West from temp. 285 M. C. Over rough mountainous country.

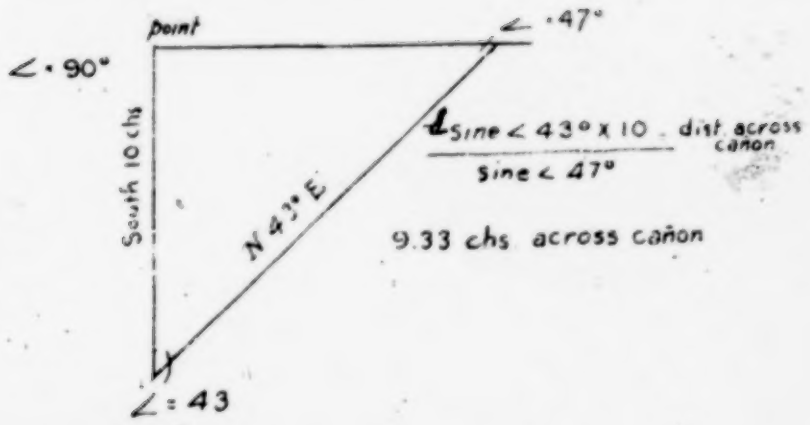
39.20 Dr. S. E. cut in solid sandstone.
39.60 Large rock hill 2½ chs. wide.
47.00 Ravine 50 lks. deep. S. E. 40 lks. wd.
Ascend.
58.00 Head of canon S. E.
62.70 Bottom of canon Ascend.
68.50 Descend sandstone ledge 38 ft.
76.00 Bottom of canon 100 ft. deep S. 60° E. ascend.
79.20 Sandstone ledge 30 ft. N. W. & S. E. lie. canon.
80.00 I find no evidence whatever of marked stone, or mound of 286 M. C.

I continue west on 286 mile.

32.00 Deep canon, about 200 ft. deep bears S. E.

This canon being too rough and precipitous to chain. I set flag on west side of canon on line, and also flag at instrument on E. side of canon. From flag on west side I run off base 10 chs. south to a point from which the flag on the east side bears W. 43° E.

[fol. 898] Thus the triangle.



41.33 West bank of canon.
80.00 I find no trace whatever of corner. The topography of the 285th and 286th miles, I find agrees generally with the records of the survey of 1868; but I find no trace whatever of the line neither blazes or corners.
Set temp. stake.

Nov. 3rd, 1899.

Nov. 4th, 1899 I commence at the theoretical location of the 284th mile corner, and run N.

13.04 The theoretical distance reported by Cunningham & Warner to the Colo.-N. M. b'd'y line.
I find no trace of Cunningham & Warner's closing corner or any evidence of the 284 mile corner.
I run east along the alleged Colo.-N. M. b'd'y line from this theoretical location of the 284 M. C. as closed on by C. & W.
2.00 Descend N. & S.
3.50 Base mesa.
9.00 Dr. S. E.
20.70 Irrigation ditch S. 30° E.
45.00 Right bank Rio La Plata stoney bottom water in holes. S. 60° E.
62.30 La Plata & Durango Road N. & S.
63.30 Arroya south.
70.00 Ascend N. & S.
79.40 Summit of hill N. & S.
80.00 I make search for 283 M. C. and C. & W. C. C. but find no
[fol. 899] evidence or trace of corners.
I continue east.
3.20 but find, no trace of any description, of a line. I conclude that this is not the b'd'y line.

Nov. 4th, 1899.

Nov. 5th, 1899, I find and identify the corner of secs. 10, 11, 14 & 15 T. 32 N. R. 13 W. as surveyed by Tyler & Medary in 1881.
I establish a true meridian with the solar at this corner.
Thence N. 89° 21′ W. bet. secs. 10 & 15.

20.00 A stone 8 x 8 x 5 2 lks S. of line.
40.02 A stone 7 x 8 x 4 3 lks. S. of line.
42.50 Rio La Plata corner S. about 30 lks. wide.
60.00 Find no. 1/16 cor.
77.00 Base of mesa.
79.00 Summit of mesa 200 ft. high.
84.04 A (*sandstone*) cedar tree 12 ins. diam. blazed on 4 sides bears 6 lks S. A pinion 12 in. diam. bears S. 45° W., 50 lks dist. from cedar for corner of secs. 9, 10, 15 & 16.
N. bet. secs. 9 & 10.
1.00 Descend from mesa E. & W.
3.75 Ravine E.
9.76 Road E. & W.
29.12 The post previously described and partially identified as the 284 M. C. bears west 255 lks.
I find no trace of C. C. here or at 29.76 chs., the distance reported by Tyler — Medary as the closing distance on the State line.
I continue W.
43.00 I find no evidence whatever of Cunningham & Warner's
[fol. 900] C. C. or the alleged 284 M. C. reported 1 ch. west.
I return to corner of secs. 10, 11, 14 & 15 T. 32 N., R., 13 W. & run North bet. secs. 10 & 15.
1.20 Dr. west Ascend.
7.00 Dim. road N. W. & S. E.
18.00 Top of mesa.
20.00 Find no stone for 1/16 cor. Descend E. & W.
22.50 Base of mesa.
29.27 The stone in mound of stones previously described and partially identified as the 283 mile cor. bears S. 80° W. 2 chs. dist. I find no C. C.
I continue N.
42.50 I find no trace of Warner & Cunningham's C. C. or of the alleged 283 mile corner 2 chs. west.

Nov. 5th, '99.

Nov. 6th, 1899 at the 280th mile corner identified on Nov. 4th, I run E.

NOTE.—U. S. Deputy Surveyor Cecil A. Deane has retraced & reestablished a portion of the S. B'd'y of Colo. setting ½ M. corners remarking the origiaal mile corner stones in some cases, marking bearing tree and estab'g pits, consequently it is impossible in some cases to identify the line from old corner descriptions.
E. from 280 mile cor.

Ascend through timber.
2.60 Top of mesa N. & S. Thence over mesa.
12.50 Descend N. & S.
19.00 Dr. S. E. base hill ascend.
25.00 Summit hill N. & S.
32.50 Ravine S. E
38.50 Descend abruptly into dry creek bed S. E.
40.00 A sandstone 24 x 7 x 3. Set in mound of rock marked
[fol. 901] "¼" on north and mound of rock 5 lks. N., 3½ ft. base x 2 ft. high, stone bears south 74 lks. dist. from which a Pinon 14 ins. diam. bears S. 45° E. 40 lks. dist.
45.30 Dry bed of creek course S. E. 10 chs. wd.
49.00 Bend of creek east to south.
50.20 Foot of rocky bluff 75 ft. high N. & S.
52.00 Top of bluff.
64.20 McDemott Arroya 2 chs. wd. south.
68.00 Perpendicular bank of old arroya bears S. 15° W.
72.00 Top of spur to north.
80.42 A sandstone 20 x 8 x 7 ins. bears 2 5lks. south markings very dim "N. M."—"C," and "279" and "48" on opposite faces. Stone lays on top of loose mound of earth. I fail to find marked stone deposit under this rock. This is evidently the 279th corner stone but can not identify its true position.
I set up over this stone and run East, from 279 M. stone
.16 A sandstone 8 x 4 x 10 ins. above ground set & marked for a C. C. by C. A. Deane, D. S in the survey of cont. #811 Colo.
As it is the purpose of this examination to locate the survey of E. N. Darling in 1868; I will confine my inspection to such survey.
3.00 Ascend rocky hill.
6.40 Summit hill.
31.90 Dr. N.
38.20 A large sandstone boulder on summit ridge stone. About 12 ft. high x 30 x 20 ft.
40.12 A sandstone 24 x 18 x 7 ins. set on bed rock, in mound of rocks marked ¼ on north from which:—
A pinion 10 ins. diam. bears N. 11° W. 54 chs. dist. marked ¼ S. B. T.
[fol. 902] Mound of stone 2 ft. base and 1½ ft. high, north of corner.
This corner is 5 lks. S. of line.
44.00 Leaves timber N. E. & S. W.
61.00 Ent. timber N. & S.
63.00 Leave timber N. & S.
69.60 Arroya course N.
73.00 Ent. timber N. & S.
75.45 Top of ridge N. & S. live timber.
79.10 Corner of wire fence bears 11 lks N.

Fence bears E. & S.

79.10 Corner of wire fence bears 11 lks. N.

80.62 A cedar post 8 ins. diam. set in mound of earth, 15 ins. of post projecting above mound, bears N. 11 lks. post marked recently "Colo." on N. old mark "N. M." on south. Two pits on line, 8 lks. from post 20 x 20 x 8 ins.
Cedar 8 ins. diam. bears S. 19° 6' E. 46 lks. dist. marked "B. T." "N. M.
The original notes describe a sandstone set for the 278 M. C. and a marked stone deposited 3½ ft. under ground.. I find neither stone corner or deposit.
The large boulder noted by E. N. Darling at 41.80 chs. from the 278 mile corner, I check very closely in alinement and measurement. As this is the only large rock in this vicinity. I think beyond doubt this is the boulder referred to.
I set my instrument over the post marked Colo. N. M. and run East on 278 mile. Over prairie.

.44 C. C. set by C. A. Deane D. S. in survey of cont. #811 Colo.

4.40 Dr. N. W.

18.45 1/16 C. C. (C. A. Deane.)

40.53 A sandstone 4 x 8 x 6 ins. above ground marked ¼ in. on north Md. & Pits.

43.70 Pruitt irrigation ditch S. 30° W.

[fol. 903] Ectl. seat timber N. 30° E. & S. W.

58.24 Sandstone 24 x 12 x 3 marked 1/16 C. C. bears S. 5 lks.

61.80 Top of ridge bears N. E. & S. W.

70.00 Ent. timber N. & S.

80.63 A cedar post 4 ft. high 7 in. diam. set in mound of dirt 15. in. high 4 ft. base pits 24 x 30 x 10 in. on line. Post has very old marks, "1868" in west "C." on north and new marks, "N. M." on south & "277 M." on east from which a pine 8 in. (recently marked) bears S. 46° 45' E., 42 chs. dist. marked "B. T. M. N."
A cedar 12 ins. diam. bears N. 51° 5' E. 47 lks. dist. marked "B. T. Colo."
I find no trace of charcoal deposit, but I believe this to be the original 277 mile corner.

Nov. 6th. 1899.

Nov. 7th, 1899, at 8 a. m. I set off 37° N. on lat. arc and on dec'l arc and determine a true meridian with the solar at the 277 M. corner identified Nov. 6th.
Thence I run E.

.22 Sandstone 14 x 5 x 10 ins. above ground marked (C. A. Deane) for C. C. of secs. 19 & 20.

18.00 Leave timber N. W. & S. E.

33.00 Ent. timbers N. & S.

40.24 Sandstone 8 x 7 x 5 ins. above ground bears N. 5 chs. marked "¼" in north.
Mound & pits.
A cedar 12 ins. bears N. 38° E. 91 chs. dist. marked ¼ S. B. T.
51.00 Top sandy knoll.
70.00 Leave timber N. W. & S. E.
79.46 C. C. bet. secs. 20 & 21 (C. A. Deane).
80.07 A cedar post 7 in. diam. 4½ ft. high set in mound of earth
[fol. 904] 3½ x 1½ ft. No old marks. Recently marked "276" on E., "N. M." on south, "1868" west and "C." on north face. Pits 24 x 30 x 10 ins. on line. No trees near corner. The post is undoubtedly the original one but if it ever contained any marks, they have been destroyed.
Markings, mound & pits are the work of C. A. Deane D. S.
From this post marked "276" I run East. Rolling country no timber.
28.00 Ent. seat timber & sage N. & S.
34.00 Leave timber N. & S.
40.09 Sandstone 6 x 8 x 12 above ground, bears *bears* N. 5 lks. marked ¼ on north, pits 18 x 18 x 12 ins. Established west of stone.
Mound stone 3½ x 2½ north of stone.
70.00 Ent. seat. timber N. W. & S. E.
74.50 Ent. dense " " "
78.85 Dr. S. W.
79.98 Quartzite 14 x 9 x 2 ins. bears N. 31 lks. dist. marked C. C. on north and "111" on E. & W. face from which a marked T. 32 R. 11 W. Sec. 21 B. T.
pinion 7 ins. diam. bears N. 53° 10′ W., 16 lks. dist.
A cedar 10 ins. diam. bears N. 17° 20′ E. 7 lks. dist. marked T. 32 N. R. 11 W. Sec. 22 B. T.
81.54 A cedar tree 10 ins. diam. (very old) blazed on 4 sides, marked "C." on north "275 M." on east "N. M." on south and "1868" on west. These marks are very old. Tree cor. bears N. 32 lks.
By cutting into one of the old blazes I find 29 distinct rings which would indicate the age of the blaze, 29 yrs. This is undoubtedly the original tree corner described as the 275 M. C.
From this corner——
[fol. 905] A cedar (recently marked) 10 inches bears N. 42° 15′ E. 24 lks. dist. marked "B. T." "Colo." and a cedar 10 ins. diam. bears S. 42° 15′ W. 27 lks. dist. marked "B. T." "N. M."
These trees have been blazed and marked by "C. A. Deane D. S."

This is undoubtedly the Colo.-New Mexico bd'y line, but I have not yet found a marked stone or charcoal deposit, described in the original notes as deposited at the mile corners. I therefore run East to the 274 mile corner.
I find an old cedar post marked "C." "N. M." "1868" & "274" on north, south, west, & east. I find no stone deposit.
A peak of La Plata Mts. bears N. 8° W.
A peak of Las Annum Mts. bears N. 60° E.
I believe this to be the 274 mile corner.

Exam. E. B'dy Ute Reservation, T. 32 N. N. M. P. M.

Nov. 23d, 1899, at 8.30 a. m, l. n. t. I set off 37° N. on lat. arc and 20° 245 on dec'l arc and determine a true meridian with the solar, at this temp. 287 mile corner set Nov. 3d, 1899, I find no trace of the C. C. bet. Rgs. 13 & 14 west reported 210 lks. East of the 287 mile corner.
I measure east 210 lks. from temp. 287 mile corner and run north.

50.20 I make careful search for 1/16, ¼ & mile corners but find absolutely no trace of line or corners.

[fol. 906] As no topography was noted on this line and as tree corners were inwardly new, the blazes on which, if there ever were any, are probably overgrown. I consider there is little chance of locating the line from the south. I therefore locate and identify the S. C. on the 8th correction line north bet. ranges 13 & 14 west.

Nov. 23d. 1899.

From this corner I retrace the 8th cor. line East identifying 1/16, ¼, and mile corners to S. C. secs. 33 & 34. From this corner I measure off 3 chs. east, and make search for the C. C. of the line bet. ranges 13 & 14 west T. 32 N. described as a "Pinon tree 9 ins diam. marked C. C. on south for closing corner."
I find no trace of tree.
From point 3 chs. East of S. C. secs. 33 & 34 I run South.

10.30 No trace of 3d & 4th mile corner bet. secs. 1 & 2.
Set stake from which I run and measure South. Over rough country.
9.80 Dr. in ravine N. 30° E. Ascend.
20.00 No trace of 1/16 cor.
40.00 No trace of ¼ cor.
50.00 Descend into canon E. & W.
60.00 No trace of 1/16 cor.
60.10 Descend sandstone ledge E. & W. 30 ft.
64.20 Base of canon, drain East. Ascend.
66.60 Sandstone ledge 30 ft. E. & W.

80.00 No trace whatever of corner.
The canon noted in the original survey at 13 chs. N. on 2d mile bet. secs. 1 & 6 or 47.30 chs. S. of 8th cor. line does not exist. This point would fall on the top of a high mesa about 27 chs. from the nearest canon.
Set temp. corner at 80.00.

[fol. 907] Continue South.
20.00 No trace of 1/16 cor.
40.00 No trace of ¼ cor.
I find not the slightest trace of a line. The topography does not agree in any particular with the original notes. The deputy claims that pinon & cedar trees were used as corners. If such is the case I do not believe that these trees were blazed. I don't believe that this line between ranges 13 & 14 west T. 32 N. has ever been run in this field.
Nov. 24th, 1899.

[fol. 908] General Description Colo.-N. M. Bdy. Line Bet. 274 & 287 M. C., and East Bdy. Ute Reservation, T. 32 N.

Acting under instructions, contained in office letter "E." June 22, 1899, to determine the location of the state boundary in T. 32 N. R. 13 W. N. M. P. M., and vicinity and the East bdy. of the Southern Ute Indian Reservation in T. 32 N., I have retraced 13 miles of the line closed on by Tyler & Medary in their survey of T. 32 N., R. 13 West, five miles of the closing line claimed by Cunningham and Warner as the South bdy. of Colo. subdivisional lines in T. 32 N. R. 13 W. and over two miles of the west b'd'y of said T. P., which is the east b'd'y of the Southern Ute Indian Reservation. In township 32 N. R. 13 West I find only one set of corners. I believe the surveys by Tyler and Medary and Cunningham and Warner are identical, with the exception of the closing line, which should be the Colo.-N. M. b'd'y line.

I find nothing whatever to warrant the claims of Cunningham and Warner, that the Colo.-N. M. b'd'y line is located from 42 to 44 chs. north of the first section corners south, surveyed by them in 1887.

The line closed on by Tyler and Medary, although I fail to fully identify in Range 13 W., I find by continuing east that the topography and corner descriptions agree very closely with the original notes. The tree corner, 275th, mile I consider fully identified. [fol. 909] The large boulders on the 279th mile cannot be mistaken, as it is the only stone in that vicinity or within a radius of 5 miles that would answer the description and meet the conditions described in the notes of E. M. Darling's survey.

I found no corners on the west b'd'y of township 32 N. R. 13 W. nor does the topography of this line agree in any particular with the original notes of survey by Tyler & Medary in 1881. I do not believe survey of this line was executed as reported.

Frank M. Johnson, U. S. Examiner of Surveys.

[fol. 910] Oath of Special Agent for the Examination of Surveys

I, Frank M. Johnson, Special Agent for the examination of surveys, do solemnly swear that, in pursuance of instructions received from the Commissioner of the General Land Office, bearing date the 22d day of June, 1899, and the — day of —, 189-, I have well, faithfully, and truly, in my own proper person, and in strict conformity with the instructions furnished by said Commissioner, examined all those parts or portions of Colo.-N. Mex. Bdy. Line bet. the 274th m. & the 287th mile corners; E. Bdy. Ute Reservation, W. M. Meridian, in the Bdy. Line Colo. & New Mexico surveyed by E. N. Darling in 1868, under contract No. —, dated —, —, 189-, as are represented in the foregoing field notes as having been examined by me; and I do further solemnly swear that the foregoing are the true field notes of such examination.

Frank M. Johnson, Special Agent.

DISTRICT OF COLUMBIA, ss:

Subscribed and sworn to before me this 28th day of February, 1900.

Wm. H. De Lacy, Notary Public.

[fol. 911] PLAINTIFF'S EXHIBIT No. 21

4—207

814649. "E." M. L. 400,159.

Department of the Interior,
General Land Office,
Washington, D. C., December 13, 1918.

J. A. D.

I hereby certify that the annexed photographic copy of the field notes of the survey of the Colorado-New Mexico boundary line by Frank M. Johnson, Examiner of Surveys, in 1900 and 1901, is a true and literal exemplification of the official field notes of examination which are on file in this office.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

J. M. McPhaul, Acting Assistant Commissioner of the General Land Office.

[SEAL.]

12-12: JTA.

[fol. 912] Rec'd with letter from Frank M. Johnson, Exr., dated March 12, 1902. 42257/1902.

4—679a

Field-notes of the Examination of Surveys in the Colorado-New Mexico Bdy. Line Executed by ——— ———, U. S. Deputy Surveyor, under Contract No. —, dated ——— —, 190-, as Examined by Frank M. Johnson, Exam. of Surveys.

Examination commenced Aug. 3d, 1900.
Examination completed Sept. 12th, 1901.

[fol. 913] Names and Duties of Assistants

Irwin Stiles, Chainman.
Ora Hayes, Chainman.

Certificate

We hereby certify that we assisted Frank M. Johnson-special agent for the examination of surveys, in examining surveys for ——, under contract No. —, as follows: Colorado-New Mexico Bdy. Line; that said examination has been, in all respects, to the best of our knowledge and belief, well and faithfully made, according to the instructions furnished by the commissioner of the General Land Office.

Ora Hayes, Chainman. Irwin Stiles, Chainman.

Subscribed and sworn to before me this 30th day of Sept. 1901. Frank M. Johnson, Examiner of Surveys.

[fol. 914] Examination of the Colorado, New Mex., Bdry. Line.

The examination survey of the Colorado, New Mex. Bdry. line between Ast. mons. Nos. 6 and 8, was made with Young and Son's transit Nos. 6556 and 6860, provided with Smith solar attachments.

The solar apparatus was frequently tested by comparing the indications resulting from solar observations with true meridians determined by observations on Polaris.

All measurements are based on a 66 ft. Chesterman steel tape which is used as a standard to test the 100 lk. chain.

[fol. 915] Astronomical Monument No. 6, is situated in the canon of the Rio Los Pinos, on the west of the river, and about ¾ of a mile North of the Toltec Gorge.

The monument is a lava shaft. 18 x 18 x 8 ins., above mound of rock 2 ft. high, 5 ft. base, marked Colorado, Astrom. Mon. 6 on North, 1868 on East, New Mexico on S., and 37° N. L., on west.

Mound of stone scattered around base of monument.

The bearings to the several natural objects are practically correct as noted in the original field notes, and are as follows:

Ledge of rock bears N. 70° W., 5 chns. dist.
Ledge of rock brs. N. 56° 40' W.
Ledge of rock on mountain side brs. N. 15° 30' W.
Ledge of rock brs. N. 12° 15' E.
Mound on ledge of rock brs. N. 43° 5' W.

Peak on ledge on summit of mountain brs. N. 67° 10′ E.
Volcanic ledge on side of mountain brs. N. 72° E.
Highest point on ledge on side of mountain brs. S. 87° 10′ E.
S. point of ledge of rock brs. S. 83° E.
Centre of ledge of rock in valley brs. S. 71° E.
S. point of ledge on E. side of canon, brs. S. 59° 10′ E., about 25 chns. dist.
Centre of canon at Keltee Gorge brs. S. 58° 7′ E. 25 chns. dist.
Pyramid ledge brs. S. 54° 5′ E.
Ledge of volcanic rock brs. S. 12° 10′ E.
Ledge of rock on side of mountain brs. S. 10° 50′ W. (by rough triangulation 27 chns. dist.)

[fol. 916] From astronomical monument 6.
I run West along the south boundary of Colorado. Ascending from corner in aspen timber.
7.60 Ascend abruptly rocky bluff. Enter timber *timber*.
22.20 Leave heavy timber.
23.00 Summit of ridge, brs. N. and S.
27.60 Brook, course N.
31.44 Fall 2 lks. S. of 182nd mile corner on South Bd'y of Colorado. A lava rock 8 x 6 x 4 ins., above ground marks illegible.
No traces of pits or marked deposit.

Offset over corner and run west.
Over rough and broken mountain top.
12.20 Drain, course N. W.
38.70 Spring branch, course N. W.
47.20 Drain, course N. E.
80.12 Fall 7 lks. N. of old stone, marks illegible, no deposit found.
Land, mountainous.
Soil, 3rd rate.
Timber, pine and aspen.
I assume this to be the 183rd mile cor.

184th Mile

Offset over 183rd mile cor., I run W. on 184th mile over mountainous country, heavily timbered.
12.60 Drain, course S. E., ascend.
70.00 Top of ridge, brs. N. and S., descend.
76.00 Drain, course N. W.
78.00 E. wall of canon, brs. N. E. and S. W.
80.14 Fall 8 lks. S. of sandstone 8 x 6 x 4 ins. above ground, mk'd C. on N. other marks illegible.
Land, mountainous.
Soil, 3rd rate.
Timber, pine and aspen.

[fol. 917] 185th Mile

Offset over cor. and run W. on 185th mile.
Over rough, mountainous country, through timber.
.50 Descend.
50.00 Bottom of canon, spring branch, course N. E., ascend.
10.00 Top of W. wall of canon, brs. N. E. and S. W.
15.00 Small drain, course N. E.
56.00 Small drain, course N. W.
79.90 Fall 5 lks. S. of sandstone 8 x 10 x 6 ins. above ground, mk'd C. on N. and N. M. on S., from which
A pine 18 ins. diam. brs. S. 60° W., 10 lks. dist.
No other trees in evidence.
Land, mountainous.
Soil, 3rd rate.
Timber, pine, spruce and aspen.

186th Mile

Offset over the 185th mile cor., I run W. on 186th mile over mountainous country, heavily timbered.
3.60 Small branch, course N.
7.00 Enter fallen timber.
50.00 Small drain, course N.
61.00 Leave timber, enter valley, brs. N.
74.10 Brook, course N. E.
80.17 Fall 4 lks. N. of sandstone 8 x 10 x 3 ins., mk'd C. on the N., N. M. on S., from which
A spruce 20 ins. diam. brs. S. 36° E., 27 lks. dist., mk'd B. T.
Bearings to natural objects are practically correct and are as follows:
Peak brs. N. 70° W.
Peak brs. N. 15° 15′ W.
Peak brs. N. 30° E.
Peak brs. N. 58° 30′ E.
High peak brs. S. 4° 5′ E.
Point of mountain ridge, brs. N. 53° 50′ W.
[fol. 918] Land, mountainous.
Soil, 2nd rate.
Timber, pine, spruce and aspen.

187th Mile

From 186th mile cor. run W. on 187th mile, over mountainous country, through standing and fallen timber on the mountains.
14.00 Drain, course N. E.

17.00 Leave valley and enter heavy timber; ascend.
46.00 Summit of ridge, brs. N. E. and S. W.; descend.
67.00 Ravine, course N.
71.80 Creek, course N. 60° E.
80.22 Fall 20 lks. N. of the 187th mile cor., which is a lava rock 16 x 16 x 8 ins., mk'd C. on the N., 187 M. on E., and N. M. on S.
No trace of pits or deposit.
Land, mountainous.
Soil, sandy, 2nd rate.
Timber, pine, spruce and aspen.

188th Mile

Offset over 187th mile cor., and run W. on 188th mile, over mountainous timbered country; ascend.
25.00 Top of ascent. Rocky bluff brs. N. E. and S. W.; descend.
28.50 Bearings to natural objects in original notes are incorrect.
42.60 Ravine, course N. 10° W.
43.80 Ravine, course N. 10° E.; ascend.
53.00 N. slope of hill.
55.00 Descend gradually.
71.00 Drain, course N. 15° W.; ascend.
75.00 Highest point on N. slope of hill, descend through fallen timber.
80.00 Fall 44 lks. S. of the 188th mile cor., (re-established by Edwin H. Kellogg).
[fol. 919] A lava rock 10x12x8 ins., mk'd C. 188 M. on N., and N. M. on S.
A pine tree 12 ins. diam. brs. N. 8° W., 190 lks. dist.
Bearings to natural objects are practically correct, and are as follows.
Timbered hill brs. S. 27° W., and S. 47° W., S. and W. side respectively.
Prairie peak brs. S. 65° W.
Volcanic boulder brs. N. 67° W.
Volcanic ledge on hillside brs. N. 56° 30′ W.
W. point of mountain ridge, brs. N. 6° 7′ E.
Land, mountainous.
Soil, 2nd rate.
Timber, pine, spruce and aspen.

189th Mile

Offset over the 188th mile cor., I run W. on the 189th mile, gradually descending.
6.50 Brook, course N. 60° E.; ascend gradually.

19.67 Closing cor. bet. Secs. 19 and 20, T. 32 N. R., 5° E.
23.00 Drain, course S. E.
27.30 Top of ridge, brs. N. W. and S. E.; descend.
33.00 Enter aspens, brs. N. and S.
38.00 Head of valley, brs. S. 40° E.; ascend.
44.00 Top of ridge, brs. N. and S.; descend through spruce timber.
51.00 Leave spruce timber, brs. N. and S.
56.00 Edge of cliff 1,000 ft. above valley to the W.
80.00 Set stake for temp. 189th mile cor.
Land, mountainous.
Soil, rocky, 4th rate.
Timber, pine, spruce and aspen.

[fol. 920]

190th Mile

From the 189th mile cor., I run W. on the 190th mile, descending through fallen timber.
15.84 Bearings to peaks in the original notes are found as follows: High volcanic peak brs. S. 42° 15′ E., S. 20° 12′ E. S. 7° 30′ E., S. 14° 45′ W., N. 63° 12′ W.
Point of volcanic rock brs. N. 45° W.
50.00 Brook, course N. 30° E.
51.10 Large boulder 10 cubic feet, 10 lks. S. of line.
53.00 Brook, course N. E.
57.00 Brook, course N.
65.00 Edge of bluff, descend into Wolf Creek Valley.
80.12 Fall 9 lks. N. of the 190th mile cor., which is a sandstone 24x12x6 ins. unk'd C. on the N., N. M. on the S., other marks partly defaced.
No trace of pit or deposit.
Land mountainous.
Soil, sandy, 3rd rate.
Timber, pine, spruce and aspen.

191st Mile

Offset over 190th mile cor. and run W. on the 191st mile, descending through timber into Wolf Creek Valley.
11.50 E. bank of Wolf Creek 1 chn. wide, course S. W.
Thence through densely timbered creek bottom.
32.00 Wagon road, brs. N. E. and S. W.
38.00 Drain, course S. W.
54.00 Brook, course S.
61.00 Small brook, course S., leave bottom and ascend.
79.31 The center of D. R. G. R. R. brs. N. 35° E. and S. 35° W.
80.00 Position for 191st mile cor. falls in railroad cut, and has evidently been destroyed.

Bearings to natural objects are practically correct and are as follows:

[fol. 921] Volcanic ledge of rock brs. N. 28° E.
Volcanic ledge of rock brs. N. 38° E.
Volcanic rock on ridge, brs. S. 68° 15' E.
Volcanic ledge brs. S. 60° 10' E.
Volcanic rock on ridge, brs. S. 47° E.
White sand slide on mountain side brs. S. 10° E.
Land, mountainous and level.
Soil, 1st and 2nd rate.
Timber, pine and aspen.
Set temp. stake for 191st mile cor.

192nd Mile

From temp. 191st mile cor., I run W. on the 192nd mile.
Over rough and broken country.
.20 Top of railroad cut, brs. N. E. and S. W.; ascend through oak brush.
9.30 Large boulder 20x10x6 ft., 4 lks. S. of line.
18.60 E. end of rock slide.
21.00 Leave slide.
21.50 Enter slide.
Thence over Eastern slope of mountain.
30.00 Top of mountain brs. E. and W.
35.00 Enter spruce and scrub oak.
Descend gradually through dense timber.
61.00 Drain, course S. 70° W.
64.90 Drain, S. E.
70.10 Brook, course S. 60° W.
78.50 Begin abrupt descent.
80.00 Set stake at 192nd mile for cor. (temp).
No trace of original monument remains.
Land, mountainous.
Soil, 2nd rate.
Timber, pine, spruce and aspen.

[fol. 922] 193rd Mile

From temp. 192nd mile cor., I run W. on 193rd mile.
Over rough country through dense timber; descend.
Foot of descent.
12.00 Foot of descent.
24.00 Leave timber, brs. N. E. and S. W.
33.00 Drain, course S. E.
38.55 Descend gradually over open country.
79.80 Dry creek, course S. W.

80.00 Set stake for temp. 193rd mile cor.
No trace of original cor. left.
Bearings to natural objects are practically correct.
Land, mountainous and rolling.
Soil, sandy, 2nd rate.
Timber, pine and aspen.

194th Mile

From temp. 193rd mile cor., I run W. on the 194th mile; gradually descending through open country.

16.70 Road N. 30° W. and S. 30° E.
17.60 Dry brook, course S. W.
21.10 Descend 1st bank Rio Chama, brs. N. E. and S. W.
23.40 Enter willows, brs. N. and S.
24.00 Rio Chama 50 lks. wide, 18 ins. deep, clear water, course S. W.
In river bottom through willow timber.
28.00 Leave valley, ascend through fallen timber.
33.65 Summit of spur, enter aspen timber.
36.50 Leave aspen timber.
Top of ridge, brs. N. and S.
Descend.
42.00 Drain, course S. 20° E.
Begin ascent of the Navajo mountains.
50.30 Spring branch, course S. 10° W., in small valley.
Begin steep ascent through heavy spruce and aspen timber.

[fol. 922½]

63.80 Top of spur, brs. N. and S.
69.00 Spring branch, course N. 30° E.
80.00 Set stake for temp. 194th mile cor., no trace of original cor. can be found.
Land, mountainous.
Soil, sandy, 2nd rate.
Timber, spruce and aspen.

195th Mile

From the 194th mile cor., I run W. on the 195th mile.
Ascending through heavy timber.

5.00 Top of bench, brs. N. and S.
11.00 Enter fallen timber.
18.00 Leave fallen timber, enter scattering aspen timber, brs. N. and S.
36.00 Brook, course S. E.
37.10 Enter drain, course S. E.

38.00 Leave drain, from the N.
65.00 Summit of ridge, brs. N. and S.; descend.
70.20 Brook, course N. 70° E.
Clear water, slow current.
Leave fallen and standing timber, and ascend thro. open country.
76.00 Top of bench, course N. and S.
80.00 Set stake for temp. 195th cor., no trace of old cor. left.
Land, mountainous.
Soil, rocky, 4th rate.
Timber, spruce, pine and aspen.
NOTE.—This country has frequently been swept by fire, and timber in vicinity of cor. has been recently destroyed.

196th Mile.

From the 195th mile cor., run W. on the 196th mile.
[fol. 923] Ascending through heavy timber.
26.00 Top of bench, brs. N. and S., and enter park.
36.00 Enter swampy ground.
38.70 Leave same, ascend.
51.00 Top of small ridge, brs. N. W. and S. E.
57.00 Drain, general course S.
76.00 Summit of the Navajo Mountains, thence along top of mountain.
82.16 Fall 40 lks. N. of 196th mile cor., which is a red spruce, 15 ins. in dia., blazed on N., S., E. and W. faces, mk'd respectively C. N. M., 196 M. and 1868, from which:
A white spruce 12 ins. diam. brs. S. 25° W., 16 lks. dist., mk'd. 19.6 M., N. M. B. T.
A white spruce 14 ins. diam., brs. N. 25° E., 23½ lks. dist., mk'd. 196 M., C. B. T.
Land mountainous.
Soil, rocky, 3rd rate.
Timber, pine, spruce and aspen.

197th Mile.

Offset to 196th mile, I run W. on 197th mile.
Over mountain top through heavy timber.
5.66 Drain, course S.
Commence descent.
41.00 Drain, course S.
60.00 Leave heavy pine timber, and descend abruptly through growth of aspens.
The line up to this point has been following a series of very old blazes, but here they cease, and all trace of the old line is lost.

I continue my line west to the theoretical position of the 202nd mile monument. The topography does not agree with that of the original survey in any manner. The
[fol. 924] old blazes discontinue and the — from the 60 chain point on the 197th mile.

The topography does not agree with that of the original survey in any particular, the old blazes discontinue and the country is not that described in the Darling notes. It is very evident that the line west from the aspen thicket is not that surveyed in 1868.

At the 202nd mile point I made an exhaustive search for old blazes. At about 11 chains south of my line I found a few very old ax marks. Following these a short distance I found an aspen tree some links south having an

N. M.

old blaze on the north face and marked B. T. old but legible, also an old post about 10 ins. in diameter and 7 ft. in length much decayed fallen on the ground and marked C. N. M. 1868 and 202 on different sides. Northward from this post, there is a fallen aspen blazed and marked C. From the base of the post the position of the aspen tree is as follows:

Base of fallen aspen 18 ins. diam. brs. N. 5° W. 77 lks. dist. marked C.

An aspen 16 ins. diam. brs. S. 7° E. 26 lks. dist. marked N. M. B. T.

The description agrees perfectly with that of the original notes. Assuming this to be the 202nd mile corner, I ran east. The topography checks within 10 lks., the line follows the old blazes and at 80.07 chs. N. 89° 56′ E. of the 202d corner there is a very slight mound of earth and stone, but no deposit. From this mound the bearings given to the several mountain peaks agree closely with the true bearings and are as follows:

[fol. 925] The conical point on E. of Sierra Navajo brs. N. 40° E.

Highest peak of Sierra Navajo brs. N. 24° W.

Most Northern point of the Southern ridge of the Sierra Navajo brs. S. 66° 15′ E.

I am satisfied that this is the position of the 201st mile corner, but not a trace of the monument itself is left.

From the 201st mile corner, which I consider fully identified, I run East

Through heavy timber. Descending gradually

5.20 Brook, course S. W.
7.20 Brook, course S. W.
31.00 Descend rapidly, bears N. and S.
33.00 Base of slope. Enter valley, bears N. E. and S. W.
36.80 Dry bed of brook, course S. W.
39.69 Dry drain to S. lowest depression of the valley.

58.90 Drain, to S. 20° E.
59.00 Indian trail bears N. W. and S. E.
61.00 Road bears N. 20° W. and S. E.
80.00 Set temp. 200th mile corner.
I find no trace of old corner or of a marked deposit.
Land, mountainous.
Soil, rocky, 3rd rate.
Timber, pine and aspen.

200th Mile

From the temp. 200th mile corner,
I run East
Over gradually ascending surface.
20.00 Enter thick growth of aspens bears N. W. and S. E.
42.00 Leave aspens, bears N. and S.
48.50 Summit of ridge, bears N. E. and S. W.
Descend S. E. slope and enter oak brush.
Thence over rolling surface.
[fol. 926]
59.60 Descend, bears N. and S.
71.50 Draw to South, ascend.
76.50 Top of ridge, bears N. and S.
78.30 Draw to S. 30° W. Main cañon enters 2 chs. S. and drains S. W.
80.00 Set stake for temp. 199th mile corner.
I find no trace of it.
Land, rolling.
Soil, loam, 1st rate.
Vegetation, aspen, oak brush and grass.

199th Mile

From the 199th temp. cor., I run
East,
Through scattering timber.
10.00 Enter spruce timber, bears N. and S.
32.20 Drain, course N. W.
37.50 Enter small valley; bears N. and S.
39.75 Creek, course S., 10 lks. wide, shallow, rapid current.
42.50 Leave valley; ascend.
50.60 Summit of ridge, bears N. and S.
Descend in aspen timber.
77.00 Base of ridge, N. and S.
80.00 Find no trace of corner.
Set temp. 198th mile corner.

A thorough search in this vicinity fails to bring to light any evidence of the existence of the original line. Up to this point the line follows the old blazes and the topographical items are practically as noted, but not the slightest trace of the old monuments exist. The absence of these was probably due to the fact that they were of wood, and the occasional fires that sweep this region have probably long since been destroyed.

[fol. 927] 203rd Mile

Returning to the 202nd identified corner, I run West on the 203rd mile, following the old blazes.

Over rough mountainous country; ascending through heavy pine timber.

3.00 Ascend abruptly.

5.00 Top of ridge, brs. N. and S., descend.

8.60 Centre of deep draw to N., ascend N. E. slope.

14.00 Summit of ridge, slopes N., descend along N. slope of mountain.

68.20 Drain to N.

Thence over rough, broken country.

80.22 Fall 11 lks. N. of the 203rd mile cor., which is a rotted and fallen post. No marks legible, from the base of which:

An aspen tree 17 ins. diam. brs. N. 5° W., 57 lks. mk'd. B. T.

An aspen tree 14 ins. diam. brs. S. 5° W., 25 lks. dist., mk'd. B. T.

I consider this cor. fully identified.

Land, mountainous.

Soil, rocky, 3rd rate.

Timber, pine and aspen.

204th Mile

Offset over 203rd mile cor., and run West on the 204th mile, over mountainous surface, thro dense timber.

1.60 Pond of water 150 lks. wide, covered with fallen timber.

11.50 South end of open valley; drain N.

Thence over rolling ground covered with fallen timber.

19.00 Heavy aspen timber, brs. N. and S.

51.00 Leave aspen timber, brs. N. and S., enter oak brush; ascend.

64.50 Top of ridge, brs. N. W. and S. E. Thence along S. W.

[fol. 928] slope of ridge.

80.00 Set stake for temp. 204th mile cor.

No trace of the original cor. can be found.

From temp. cor. timbered peak brs. S. about 1 mile dist.,
Point of perpendicular rock brs. 58° W
No conical peak visible N. W.
Land, mountainous.
Soil, rocky and sandy, 4th rate
Timber, pine and aspen.

205th Mile

From temp. 204th mile cor., I run
West over mountainous surface, through oak brush.
Ascend.
20.00 Top of ridge, brs. N. and S.; descend.
12.00 Draw, to N. W.
Thence along N. slope and descend through oak brush and scattering spruce.
77.50 Dry bed of spring branch, course S. W.
80.00 Set temp. 205th mile cor. No trace of original monument can be found. Bearings to natural objects do not agree.
Land, mountainous.
Soil, rocky and sandy, 2nd rate
Timber, pine, spruce and aspen.

206th Mile

From temp. 205th mile cor., I run
West on the 206th mile. Over rolling country
5.20 Leave valley, brs. N. E. and S. W.; ascend through oak brush.
37.00 Top of hill, highest point on rolling ground.
Hill slopes S. to valley, 5 chns. dist., descend.
80.42 Fall 23 lks. N. of position for 205th mile cor. which is a decayed pine post, marks nearly illegible from foot of
[Col. 929] which a pine tree 36 ins. diam., brs. N. 14° 30′ E., 258 lks. dist., mk'd B. T.
Pine tree fallen 28 ins. diam. brs. S. 71° 40′ W., 240 lks. dist., mk'd. B. T.
Land, mountainous.
Soil, sandy, 2nd rate.
Timber, pine and aspen.

207th Mile

From the 206th mile cor., run West on the 207th Mile
Over rolling country, through fallen timber.
1.00 Ascend.
5.00 Top of conical hill.
Leave fallen timber and descend into valley.
12.00 Wood road in valley, brs. N. and S., ascend.
14.50 Top of small rise, brs. N. W. and S. E.; descend.
23.00 Enter valley, brs. N. W. and W.
24.20 Road brs. N. W. and S. E.
28.39 Dry brook, course N. 70° W.
36.70 Leave valley, and enter oak brush, ascend.
46.50 Top of ridge, brs. N. W. and S. E.
57.50 Enter valley, brs. N. W. and S. E.
78.80 Creek, dry and high banks, drains N. W., Thence in creek.
79.60 Leave creek bed.
80.10 Set stake for 207th mile cor.; No trace of old cor. can be found.
Land, mountainous.
Soil, sandy, 2nd rate.
Timber, pine and oak brush.

208th Mile

From the 207th mile cor., run W. on the 208th mile.
4.50 Bank of dry creek 1.00 chn. wide.
5.00 Trail, brs. N. W. and S. E.
7.06 Leave valley, brs. N. W. and S. E.; ascend N. E. slope and
[fol. 930] oak brush.
26.50 Top of ridge, brs. N. W. and S. E., descend.
33.00 Leave oak brush, brs. N. W. and S. E.
35.50 Enter valley, drains N.
46.00 Leave valley, over rolling, brushy surface.
80.00 Set stake for temp. 208th mile cor.; No trace of old cor. can be found.
Bearings to natural objects are practically correct and are as follows:
Mountain peak brs. N. 26° 15′ W.
Point of mountain ridge (uncertain), brs. N. 4° 10′ E.
Mountain peaks bear N. 28° E., and S. 45° 12′ W.
Land, rolling.
Soil, sandy, 2nd rate.
Timber, pine and oak brush.

209th Mile

From the temp. 208th mile cor. run W. on the 209th mile.
Over rolling surface, and through oak brush.
45.00 South end of open valley.
Lay off a base 20 chains N. to a point from which the flag on the mountain to the W. brs. S. 32° 5′ W.
Distance triangulated 31.90 chns., this distance + .45 chns. =
76.90 Top of mountain, ridge brs. N. and S.
80.00 Set stake for temp. 209th mile cor.
No trace of old corner can be found.
Land, mountainous.
Soil, rocky, 3rd rate.
Timber, pine and aspen.

[fol. 931]

210th Mile

From temp. 209th mile cor., run W. on the 210th mile over rough, mountainous country, heavily timbered.
Descending through dense growth of aspen.
6.50 Canon E. wall of canon, 300 ft. deep, course S. 15° W.
30.00 West wall of canon, course S.; ascend.
35.00 Top of ridge; near S. point, brs. N. and S.; descend.
38.00 E. wall of canon, 500 ft. deep, course S.
63.75 Leave canon, course S.
77.00 Along ridge, brs. N. 20° E., and S. 20° W., descend.
79.00 E. wall of canon, 500 ft. deep.
80.00 Falls in bottom of canon.
Set stake for temp. 210th mile cor.
Land, rough and mountainous.
Soil, rocky, 4th rate.
Timber, pine, aspen, oak brush.

211th Mile

From temp. 210th mile cor., run W. on the 211th mile.
Ascend over rough, broken surface.
8.20 West wall of canon.
9.10 Enter 2nd rate pine timber, brs. N. E. and S. W.
Thence over rolling ground, following the old blazes.
76.20 A pine tree 36 ins. in diam. has been recently mk'd C. on the N., N. M. on the S., 211 on the E., and 37 N. L. on the W., brs. N. 90° lks. dist.
80.00 Set a stake for temp. 211th mile cor., No trace of old cor. can be found.
Land, rough and mountainous.
Soil, sandy and rocky, 4th rate.
Timber, Pine, aspen and oak brush.

212th Mile

From the temp. 211th mile cor., run W. on the 212th mile. Descending gradually through heavy timber.

18.70 Log Chute in ravine to S. W.
33.31 Set flag on E. side of canon.
40.10 E. wall of canon about 800 ft. deep, course N. W.
[fol. 932] Set flag on W. side of canon.
From flag on W. side of canon, I run off 1 use 14 chns. to the N. to a point from which the flag on the E. side of the canon brs. S. 60° E.
64.35 Flag on W. side canon.
Thence over rolling surface.
80.00 Set a stake for temp. 212 mile cor.
Land, rough and broken.
Soil, rocky, 4th rate.
Timber, pine and oak brush.

213th Mile

From the temp. 212th mile cor. I run W. on the 213th mile, over rolling country gradually descending through timber.

22.50 Draw to S. W.
31.00 Draw to S. W.
73.00 Ravine, course S. W.
77.00 Same ravine, from S. E.
80.00 Set stake for temp. 213th mile cor.
No trace of original cor. can be found.

NOTE.—The line follows the very old blazes, but no trace of the original monuments can be found.

Land, rolling.
Soil, sandy, 3rd rate.
Timber, pine and aspen.

214th Mile

From the temp. 213th mile cor., I run W. on the 214th
[fol. 933] mile over scattering timber.

31.20 Road in draw, brs. N. W. and S. E., ascend.
60.00 Top of ridge, brs. N. and S., descend.
72.50 Arroyo and draw, course N. W.
80.00 Set stake for temp. 214th mile cor.
Land, rolling.
Soil, sandy, 2nd rate.
Timber, pine and aspen.

241st Mile

From the temp. 241th mile cor., I run W. over rolling country and scattering timber.

Ascend.

7.15 Top of ridge, brs. N. and S.

Thence over Mesa country.

31.75 Fence brs. N. E. and S. W.

32.00 Enter bottom, brs. N. E. and S. W.

36.00 Left bank of Rio Navajo brs. S. 70° W.

37.80 Right bank of Rio Navajo, thence in bottom through heavy timber and brush.

42.10 Centre of railroad track brs. N. 72° W., and S. 72° E. (New Mexico Company Railway).

42.40 Wagon road parallel to railroad.

44.50 Brook 10 lks. wide, 2 ft. deep, course S.

Leave river bottom, ascend.

47.15 Fall 20 lks. N. of pile of rock, 4 ft. base, 2 ft. high, beneath which at a depth of 3 ft. I find a sandstone mkd. Aft. Sta. No. 7.

[fol. 934] Astronomical monument No. 8 is a white sandstone 36 x 14 x 10 ins., above mound of stone 6 ft. base, 1 ft. high, mk'd. 1868 on the E., 37 N. L. on the W., New Mexico on the S., and Colorado on the N.

Monument is in good condition. No trace of pits. Bearings to Natural objects are practically correct and are as follows:

Conical peak brs. N. 12° 30' W.
Conical peak brs. S. 4° E.
Conical peak timbered brs. S. 3° W.
Point of timbered ridge brs. S. 12° 18' W.
San Juan valley brs. S. 10° W.

242nd Mile

From Astronomical monument No. 8, I run E. on 242nd mile, through scattering timber.

4.60 Top of E. bank of canon.

5.30 Drain, course S. W.

9.25 A sandstone 6 x 6 x 4 ins., mk'd. 5 on E., 4 on W., and C. C. on the N., 4 rs. 4 lks. N. of line.

17.00 Drain, course S. E.

19.00 W. bank of San Juan canon; descend into canon.

21.70 Set stake for temp. 241st mile cor.
Land, rolling.
Soil, sandy, 3rd rate.
Timber, pinion, cedar.

241st Mile

From temp. cor. run E. on the 241st mile; descending into San Juan Valley.

1.50 Base of descent of San Juan river, course S. W.
6.00 Left bank of river, thence across level valley through timber and brush.
12.40 Irrigated ditch, course S. W.
12.70 Road brs. N. E. and S. W.
15.00 Cor. of rail fence, brs. S. E. and S. W.
[fol. 935] Log house brs. 25 lks. North.
21.80 Rail fence, brs. N. and S.
37.50 Rail fence, brs. N. and S.
37.80 Irrigating ditch, course S. W.
41.00 Log house on line; commence gradual ascent.
51.50 Road brs. N. E. and S. W.
52.60 Road brs. S. and N. E.
70.50 Road brs. N. E. and S. W.
80.00 Set stake for temp. 240th mile cor.; no trace of old cor. can be found.
Land, river valley.
Soil, loam, 1st rate.
Timber, cottonwood and willow.

240th Mile

From temp. 240th mile cor., run E. on the 239th mile; ascending gradually.

19.00 Leave valley; begin ascent of rough, rocky mountains.
As no corners were set between the 240th and 235th mile corners, and no topographical items noted in the original record on this portion of the line, the topography noted in my survey can be of no assistance in identifying the boundary line and will be omitted.
Temporary corners were set for the 239th, 238th, 237th and the 236th mile monuments and at 89.40 chs., east of the 236th temp. mile cor. fall 39 lks. N. of what I consider the remains of the 235th mile corner.
Two very old and nearly filled pits are located east and west of a slight mound. No stone found. A boulder 6 x 6 x 4 ft. bears S. 45° E., 9 lks. dist. from a point midway bet. the pits.

The mound and pits are overgrown with brush and covered
[fol. 936] with fallen timber, but this spot is on a rough mountain side unfrequented by man and it is unlikely that the 235th mile monument has been disturbed.

From the 235th mile cor., I run E. on the 235th mile
Through heavy timber on mountain side.

16.00 Drain, course N.
28.00 Drain, course N.
52.00 Ravine, course N.
Begin ascent.
70.00 Top of bluff, brs. N. and S., ascend gradually.
80.00 Set stake for 234th mile cor.
Land, mountainous.
Soil, rocky, 3rd rate.
Timber, Pine, spruce and pinon.

234th Mile

From temp. cor. I run E. on 234th mile, descending gradually.

2.00 Draw to N. E.
8.00 Centre of dry, rocky bed of mountain brook in ravine; course N. 20° W.
Begin steep, rocky ascent.
20.00 Top of ridge, brs. N. 10° W. and S. 10° E.
Descend through heavy timber into San Juan valley.
80.00 Set stake for temp. 233rd mile cor.
Land, mountainous.
Soil, rocky, 3rd rate.
Timber, pine, cedar and pinon.

233rd Mile

From temp. cor., I run E. on 233rd mile, over rough surface, through timber.

10.00 Canon brs. N. E.
30.00 Leave mountainous country, and enter valley of the San Juan.
Set stake for 233rd temp. mile cor. on bar along S. bank
[fol. 937] of San Juan river.
Find no trace of temp. Witness Cor.
Land, rough and level.
Soil, sandy, 1st and 2nd rate.
Timber, pine, pinon and cedar on the mountains, cottonwood and willow along river banks.

232nd Mile

From the temp. 232nd mile, I run E.
Over level bottom land.
5.00 San Juan river, course N. W. 2.00 chns. wide, rapid current 2 ft. deep.
Thence through thick willow and cottonwood timber.
19.00 San Juan river, course S.
59.00 San Juan river, course N. W.
70.00 San Juan river, course S. W.
80.00 Set stake for 231st temp. Mile cor.
Land, level river bottom.
Soil, sandy loam, 1st rate.
Timber, cottonwood and willow.

231st Mile

E. on the 231st mile; through level river valley.
50.00 Old river bed, now dry.
40.00 Leave valley, and ascend.
80.00 Set stake for temp. 230th mile cor.
Land, level and mountainous.
Soil, sandy loam, 1st rate.
Timber, cottonwood and willow.
The San Juan valley or more correctly the first bottom of the San Juan river in this vicinity is only about 100 yds. in width. By platting the old river bed it is evident that there is only a space of about 150 lks. in width [fol. 938] where the original boundary line could pass and cross the river the number of times recorded, and there is only one place in the valley where such a line will cross and intersect the river at the distances noted by E. N. Darling.
This position of the line is 34 lks. N. of the line carried eastward from Astronomical No. 8, and coincides with a line of very old ax marks and cuttings, which I believe and which is generally thought in this neighborhood to be, the marks of the original survey. However, no monuments or even traces of them were found in the valley. This condition is readily accounted for by the fact, that the river has in many places in the last 30 years washed away its old banks and changed its course.
As no corners were established east of the San Juan valley up to the witness corner at 35.80 chains west on the 224th mile. The topography on this portion of the line will be omitted as it cannot assist in the identification of the old line.

Temp. corners were set for the 229th, 228th, 227th, 226th, 225th and 224th mile corners, and a careful search made for the witness cor. on the 224th mile, but no evidence of its existence was brought to light.

At 76.29 chs. east of the temp. 224th mile cor. fall 7.77 chs. S. of the old S. E. cor. of the Southern Ute Indian Reservation.

Find no trace of the 223rd mile corner.

The distance to the Navajo river just West of the 223rd mile corner, falls about 12 chs. short of the recorded distance.

From the most probable position of the 223rd mile corner as determined by its relation to the Navajo river, I run
[fol 1639] West 35.80 chs., and make careful search for witness cor., I find no trace of it.

Set temp. 223rd mile cor., determined by course and distance from the W., 222nd, 221st, 220, 219th, 218th and 217th mile cor.

At 12.34 chns. fall 48 lks. N. of what is believed to be the 217th mile cor. A very old mound of earth and the remains of two very old pits E. and W. of the mound.

A broken sandstone originally about 20 x 10 x 8 ins. on the surface of the ground, has been mk'd, but is illegible now.

Assuming the mound to be the 217th mile cor., I run E. on the 217th mile.

Over top of mesa through heavy timber.

At 6.00 chns. edge of bluff; descend Archuletta Mountain.

80.00 Set stake for temp. 216th mile cor.

Continue descent of mountain.

At 80.00 chns. set stake for temp. 215th mile cor.

A careful search was made for old cor., but other than a few scattering blazed trees running in an East and West line close to the temp. 215th mile cor., No trace of the original line is left.

From temp. 215th mile cor., I run East on the 215th mile, and at 67.20 fall 45 lks. fall South of an old stake, set in a mound of stone. This is not the original mark for Astronomical monument No. 7, but has been here as long as some of the oldest inhabitants of the town of Edith can remember, and several disinterested parties have preserved this location thinking it on the state line. Assuming this to be Astronomical monument No. 7, I run a trial line West; the topographical items noted in the original record are practically correct and are as fol-
[fol 1640] lows:

1.70 East of ridge, bears South.
2.70 Top of ridge, bears South 20° W.
Thence over top of ridge.
12.00 descent.

17.75 Foot of ridge.
At 19.80 creek 20 lks. wide, clear water, course S.
26.20 Wagon road bears N. and S.
At 32.80 leave valley and enter timber, bears N. and S

54.70 I make a careful search for the 215th mile cor., but can find no evidence of it. I now return to the assumed Astronomical monument No. 7, and test the bearings to the natural objects recorded.

These bearings do not agree exactly from this station, but from a point N. 26 W., 38 lks. dist.

The bearings to the several peaks are as follows:
When a mountain ridge bears N. 63½° E.
Peak on the Navajo range bears N. 66° and 28′ E.
Point of bluff on the S. side of Navajo river bears S. 69° 40′ E.
Mountain peak bears S. 32° 30′ W.
South point of ridge bears S. 46° 30′ W. (highest point S. 46° 40′ W.).

This seems the most probable position of the old Astronomical monument. The bearings practically agree, and the topography to the West is substantially that of the old notes and furthermore this position is practically on the line carried E. from Astronomical monument No. 8.

The stone deposit found on any line from the east and marked Ast. station 7 bears S. 35° 30′ W., 43.06 chs. dist.

[fol. 941] East from the probable location of Astron. monument No 7, the topography agrees fairly well, up to the canon at 70 chns. on the 212th mile, noted in the original record, and a few old blazes are in evidence. Eastward from the canon however, all trace of the old line is lost.

[fol. 942] After a study of the question, on the ground, I have arrived at the following conclusion as to the probable cause of these errors.

The line between astronomical monuments 6 and 8 passes over the great Conejos and Navajo mountain ranges, the continental divide and numerous smaller mountains and mesas, which latter are cut up by deep rugged canons. The country is rough and there is considerable local magnetic attraction noticeable.

At the 60th ch. point on the mountain (197th mile), a sight was probably taken to the valley of the Chamita, which is visible 4 miles west, with the needle.

Local attraction is quite noticeable on the Navajo range and could have deflected the line, I think, 11 chains in that distance. Then once on the new line it was continued west to the Rio Navajo valley where astronomical station 7 was established. It was here that observations were made for latitude and the line found to be 35 chs. south of the 37th parallel. The astronomical monument was then placed this distance north and twenty-five chains east and per-

manently established and then from this monument the line was continued east to the canon and west to Ast. mon. No. 8.

This of course is merely the most plausible theory I think gathered from the facts on the ground. Some people in the vicinity of Edith, Colo. (near Ast. mon. 7) have long contended that there are two lines in existence in that locality, and I think this condition of the boundary accounts for that belief. Their opinions however are at such variance that their testimony can be of little value in determining the true situs of the Astronomical monument.

[fol. 943]

Description

The surface of the country along the Colorado, New Mexico Boundary line between Astronomical monuments Nos. 6 and 8, is exceedingly diversified in character. The main axis of the Rocky mountains cross this portion of the line, and divides the country into two sections widely different in topography, climate and soil. East of the range the surface is broken by the great Navajo and Conejos mountains, which rise to an elevation of over 1,300 ft. Numerous valleys of exhaustless fertility are found through which never failing streams flow and afford abundant water supply for irrigation purposes. The country is chiefly valuable for its fine forests of pine and spruce timber, although these have been greatly damaged in past years by the occasional fires that have swept the land. West of the divide the country is practically a series of barren mesas or plateaus, varied by deep canons formed by the erosive flow of its rivers. Altogether this section is rugged and mountainous in the extreme, presenting but a comparatively small area for the varied uses of husbandry.

The principal geological formations are the volcanic and cretaceous. The Continental Divide the Navajo and the Conejos ranges are of volcanic origin, while the western portion is cretaceous.

There are many fine streams along the boundary line the principal ones being the Rio Los Pinos in the Conejos mountains; the Rio Chama between the Conejos and Navajo mountains and the Rio Navajo, Rio San Juan and the Peedra river west of the divide.

The whole country appears to be underlaid with coal and several mines are being developed, the principal deposits being at Nomero on [fol. 944] the line of the D. & R. G. R. R., where they are extensively worked. Oil has recently been discovered in the vicinity of Edith, Colorado. A large number of placer claims have been taken and several wells are in operation.

No evidence of mineral was discovered near the boundary line.

Topography

Astronomical monument No. 6 on the 182nd mile of the original survey is situated on the west side of, and in the canon of the Rio Los Pinos, on the east slope of the Conejos range. Proceeding westward the line ascends several thousand feet to the summit of the mountains near the 190th mile corner. It then descends over a succession of

deep canons and ravines to the valley of the Chamita, near the 195th mile monument. It was here that the most difficult part of the work was encountered, crossing the Navajo mountain range. From the Chamita valley the boundary line ascends through heavy timber and brush. The numerous ravines and gorges together with the large amount of fallen timber, greatly retarding progress and rendering it almost impassable in places. The summit is reached near the 196th mile. There is a depression of about 1,500 ft. to the valley of the Chamita on the 200th mile where the surface again rises to the Continental divide.

Crossing the divide and for some miles down on the Pacific slope the line passes through a heavy tangled mass of vegetation. The western descent is marked by a series of deep, rugged canons, generally environed by a wall of perpendicular sandstone impassable in [fol. 945] places and necessitating miles of detour in order to cross them. This country gradually descends to the valley of the Rio Navajo at the town of Edith, a prosperous little lumber camp of about 350 inhabitants, largely Mexicans. Westward from Edith the country rises again to for nithe routih, precipitous mesas cut up by deep gorges and canons, the most notable of which is the second crossing of the Navajo. Eight miles west of this river the surface gently descends to the valley of the Rio San Juan. This valley extending about two miles along the line is extremely fertile and is in a fair state of cultivation, the chief products being wheats, oats and corn. Leaving the valley the line traverses the steep breaks of the river to the 140th mile where it again enters the valley of, and finally crosses the San Juan to the low, desert mesas over which it runs to Astronomical monument No. 8.

On account of the high altitude the winters are generally severe and very little work in the field can be performed, on account of snow before May 15th or after Oct. 15th.

[fol. 946] Recommendation

Astronomical monument No. 7 is lost. There is not the slightest trace left of the monument itself. However, its original position can be identified within a few feet; from bearings to the several mountain peaks, from the topography to the west, from the very old blaze, from its position relative to the identified corners to the west and from the evidence of old settlers, whose testimony although conflicting as to the longitudinal position of the monument practically agrees, that a monument supposed to be on the state line stood at the southwestern end of the town of Edith, and on the line from the west.

I consider the evidence of sufficient value to justify re-establishment of astronomical monument 7, at the town of Edith, at the point determined by the original bearings, inasmuch as it is the only point from which the bearings to the different peaks will check, and the topography on either side agree with the notes of the Darling surveys.

The 206th mile monument is the most westerly identified corner east of astronomical monument No. 7. The country west of the 206th mile corner practically agrees with Darling's description and

the line follows the old blazes, but there is no definite point between the 206th mile cor. and astronomical monument No. 7, that can be positively identified by the combination of bearings, topography and general description.

I would therefore recommend that astronomical monument No. 7, be restored to its original position at Edith and monuments set by proportionate measurement on a line joining astronomical monument No. 7 and the 206th mile cor.

[fol. 947] The boundary line between the 196th mile and the 201st mile monument is practically lost.

The 196th mile cor. is fully identified. There is no trace of the 201st mile monument excepting an old mound; but from this mound the bearings to the several mountain peaks check very closely, it is on the line of old blazes and bears N. 89° 56' E., from the fully identified 202nd mile cor., 80.07 chs. dist.

I believe the mound to be the remains of the 201st mile corner, and think it should be restored and monuments placed at proportionate distances on a line joining the 201st and 196th mile corner. This portion of the line falls within the limits of the Tierra Amarilla Grant, the interior of which is unsurveyed, so that no material interests can be affected by this position of the boundary. The two above mentioned discrepancies in alinement of the old survey are the only two of a serious nature. The several lost corners of other portions of the line can be restored by proportionate measurement between identified corners.

The old S. E. corner of the Southern Ute Indians Reservation established by R. C. Darling in 1873, is situated 7.77 chs. N. of the boundary line run from the west.

The new S. E. corner of the Southern Ute Indian Reservation established by S. S. Gannett in 1897 is 12.64 chs. N. of the boundary line.

Frank M. Johnson, Examiner of Surveys.

[fol. 948] Oath of Special Agent for the Examination of Surveys

I, Frank M. Johnson, special agent for the examination of surveys, do solemnly swear that, in pursuance of instructions received from the Commissioner of the General Land Office, bearing date the — day of ——, 190–, and the — day of ——, 190–, I have well, faithfully, and truly, in my own proper person, and in strict conformity with the instructions furnished by said Commissioner, examined all those parts or portions of the Colorado, N. Mex. bdy. line bet. Ast. Mons. No. 6 & 8, — Meridian, in the ——, surveyed by E. N. Darling in 1868, U. S. Deputy Surveyor, under contract No. —, dated ——, 190–, as are represented in the foregoing field notes as having been examined by me; and I do further solemnly swear that the foregoing are the true field notes of such examination.

Frank M. Johnson, Examiner of Surveys.

Subscribed and sworn to before me this 12th day of March 1962. Charles B. Strong. (Seal.) My commission expires March 11, 1965.

[fol. 949] PLAINTIFF'S EXHIBIT No. 3

Chapter 37—Boundaries

(H. B. No. 122, by Mr. Burwell)

An Act

To re-establish and fix the southern boundary line of the State of Colorado on the thirty-seventh parallel of north latitude, between astronomical monument No. 6, near Osier, Colorado, and astronomical monument No. 8, near Arboles, Colorado, as heretofore established by Ehud N. Darling, for the Government of the United States, and to make the report and record of the survey and re-establishment of said line, when filed and recorded in the office of the Secretary of State, evidence in all courts of Colorado.

Be it enacted by the General Assembly of the State of Colorado:

Section 1. That the governor of the state of Colorado be, and he is hereby, authorized and empowered to appoint a commissioner on behalf of the state of Colorado, whose duty it shall be, either in conjunction with a like commissioner, appointed by the authority of the territorial assembly of New Mexico, if said territory shall hereafter appoint or designate such commissioner, and any person or commissioner appointed and designated by the interior department of the United States, if said interior department shall so designate or appoint any such person or commissioner, to act in said premises, or with either one of such persons or commissioners, or acting solely for the state of Colorado in said behalf to by appropriate proceedings and surveys and astronomical observation, such as may be necessary and requisite to fix and determine the southern boundary line of the state of Colorado, and between said state of Colorado and the Terri- [fol. 950] tory of New Mexico, between astronomical monument numbered 6, heretofore established on the 37th parallel of north latitude, and at a point on said parallel near Osier, Colorado and extending thence westward along said 37th parallel of north latitude, fixed as the southern boundary line of Colorado by act of congress, and heretofore surveyed by Ehud N. Darling, for the United States, to astronomical monument numbered 8; also established by said Darling on said parallel at a point about four miles west of Arboles, Colorado, and to resurvey and re-establish said line as heretofore surveyed and established by the said Darling between said astronomical monuments.

Sec. 2. That in the event of the failure of either or both the said territory of New Mexico to appoint and designate such commissioner on the part of the said territory, or the said interior department of the United States to designate and appoint some person or commissioner to act in said premises on the said government of the United States, on or before July 15th, 1901, that then the said commissioner so appointed by the said governor of the state of Colorado is authorized and empowered to resurvey and re-establish the said southern boundary line of the said state of Colorado, as heretofore surveyed and established by the said Darling, between said astronomical monuments aforesaid, numbered 8 respectively.

Sec. 3. That the said commissioner, when appointed, shall have power, and he is hereby authorized, to and shall proceed after July 15, 1901, in conjunction with the other commissioners as herein provided for in conformity with this act, without delay, to resurvey and re-establish the said southern boundary line of the said state of Colorado, between said astronomical monuments numbered 6 and numbered 8, respectively, and to place an appropriate and substantial monument, where the proper place therefor is accessible, at the end of each mile thereof from the said astronomical monument numbered 6 to the said astronomical monument numbered 8, and to [fol. 951] mark and number each of said mile posts in manner and form heretofore followed by said Darling in marking and designating the said mile posts along the said southern boundary of Colorado in the original survey thereof.

Sec. 4. That the said commissioner or commissioners, as the case may be, upon the completion of said survey, shall make accurate and detailed report of all his acts and doings in said premises, and showing in what manner he has caused said line to be re-surveyed and re-established, and the course and bearings thereof, and which report shall be made under oath and shall be filed in the office of the secretary of state of Colorado; and the said secretary of state is hereby directed to duly record the same in the records of his office, and said report, when so filed and recorded in the office of the said secretary of state, and duly certified copies thereof issued out of the office of the said secretary of state, shall be received as conclusive evidence in all of the courts of the state of Colorado, in all causes of every kind and nature whatsoever arising therein, wherein the said southern boundary line of the said state of Colorado shall be in controversy, as to where said line was, and is, as fixed by the said act of congress, and by the said original survey thereof by the said Ehud N. Darling, until such time as the government of the United States shall fully re-survey and re-establish said line.

Sec. 5. That there be and is hereby appropriated out of any moneys in the state treasury, not otherwise appropriated, the sum of four thousand dollars, or so much thereof as may be necessary, to be expended in said premises by said commissioner for the purpose of carrying this act into effect. And the said commissioner is hereby authorized and empowered to employ such assistance, skilled or other-

wise, as may be necessary in the marking and designation and re-establishment of the said southern boundary line as hereinbefore provided for. And the said commissioner shall be entitled to and shall receive the sum of $10.00 per day for his services, besides his actual expenses, during such time as he may be employed in said premises.

[fol. 952] Sec. 6. That in the opinion of the general assembly an emergency exists; and, therefore, this act shall take effect and be in force from and after its passage.

Approved April 11, 1901.

[fol. 953] PLAINTIFF'S EXHIB'T No. 4

Office of the Secretary of State

State of Colorado.

UNITED STATES OF AMERICA,
State of Colorado, ss:

Certificate

I, Carl S. Milliken, Secretary of State, of the State of Colorado, do hereby certify that the annexed is a full, true and complete transcript of the report of re-survey of the Southern boundary line of the State of Colorado by Charles A. Johnson, which was filed in this Office the Twelfth day of June, A. D. 1903, at 12:20 o'clock p. m., and admitted to record.

In testimony whereof I have hereunto set my hand and affixed the Great Seal of the State of Colorado, at the City of Denver, this Fourth day of February A. D. 1922.

Carl S. Milliken, Secretary of State, by Chas. W. Armstrong, Deputy. (Seal of State of Colorado, 1876.)

[fol. 954] Report of Charles A. Johnson, Commissioner, heretofore appointed by the Governor of the State of Colorado under act of the Legislature of the State of Colorado approved April 11, 1901, to resurvey the southern boundary line of the State of Colorado as heretofore established by Ehud N. Darling in 1868.

To the Honorable Secretary of State of the State of Colorado:

I, Charles A. Johnson, duly appointed a commissioner of the State of Colorado on to-wit: April 20, day of April 1901, to resurvey the southern boundary line of the State of Colorado between astronomical monuments No. 6 and 8 respectively, and under and by authority of an Act of the Legislature of said State approved April 11th, 1903, respectfully report:

That I duly qualified as such commissioner on April 20th, 1901, and on to-wit, July 15, 1901, entered upon the duties of said office. The Government of the United States and the Government of the Territory of New Mexico, although duly notified of the provisions of said Act, each neglected to appoint and designate any person to act as commissioner in said behalf in said premises, and I accordingly proceeded to resurvey said line between said points by going on the ground with a competent civil engineer and other necessary assistance and commencing at astronomical monument No. 6 found near the true line of the 37th parallel, north latitude, about one mile east of Osier station on the line of the Denver and Rio Grande Railway Company's railroad, and found said astronomical monument No. 6, and fully identified the same by the original field notes.

[fol. 955] Field-notes

Thence I ran west as determined by solar observations and observations on Polaris, Va. 14 20′ E., offsetting from tangent to parallel at their proper places, and fully identified the original line and the following corners as marked and established by Ehud N. Darling:

182 mile Corner, found same in place, Va. 13 45′ E.
183 " " " " " " Va. 13 57′ E.
184 " " " " " "
185 " " " " " " Va. 13 30′ E.
186 " " " " " " Va. 13 54′ E.
187 " " N. M. " " "
188 " " " " " "
189 " " on side of bluff and not established.
190 " " in place.
191 " " fell in railroad cut and evidently had been destroyed. Both east and west of this, trees bore the old blazes, leaving no doubt as to the line. On this line, 33 feet east of the center of the Denver and Rio Grande railroad tract, set a spruce post 8 inches square, 6 feet long, 3 feet in ground, surrounded by mound of earth, with pits east and west. On the north face scribed Colo., on the south N. M., on east 191 M., on west 1901.
Thence west Va. 13 39′ E.
192 " " on Mt. slope. Impracticable to set.
193 Mile Post Found same on line but out of ground. Reset same and dug pits east and west. This corner is in a park 1,518 feet east of Chama River. Va. 13 45′ E.
194 Mile Post in place.
195 " " " "
196 " " " " This corner is near divide or watershed
[fol. 956] between the Chama and Little Chama rivers. Between the and the Little Chama is a steep and rough descent. I found no

corners between the 196 and 202 mile posts. The 202 was fully identified although rotted down. I replaced the post. This corner is 726 feet south of a line due west from M. P. 196. Evidently this jog occurred between mile posts 196 and 201. From 202 I ran east along a blazed line one mile, and through the bearings and topography as given in the original notes I relocated and re-set mile post 201. From 201 I ran N. 88 25′ E. Va. 13 52′ E. five miles and connected with mile post 196, the nearest identified corner.

Continuing west from mile post 202,

203 M. P. In place, well rotted. I re-set same.
204 " " On side of sharp spur.
205 " " Not found and reset.
206 " " " " " "
207 " " In place.
208 " " " "
209 " " This corner was identified by the topography of the original notes and by bushes cut in the thick growth. Fire had swept over the place and the post had been burned.

Between this corner and the W. C. for mile post 214 nothing could be identified. The stone itself at W. C. 214 had been moved. The nest of stones remained and its location checked fully with the topography of the original notes, which topography was of such a character as to sufficiently identify it. Astronomical monument No. 7 had been destroyed. No trace of mile post 216 could be found. [fol. 957] Mile post 217 was in place. Astronomical monument No. 7 could be identified within a few feet from the bearings given in the original notes. But I have found that W. C. 214 was 2,865 feet north of a line west from mile post 209. Also that W. C. 214 was 647 feet south of a line east from the Gannett monument, which monument was set by the Government at the intersection of the 107° of Longitude with the 27th parallel of Latitude. The relative position of these lines is shown on the accompanying plat. Identifying mile post 209 and W. C. 214, and nothing between, I ran from W. C. 214 S. 83 25′ E. and connected with mile post 209 at W. C. 214. I set sandstone marked on the N. Colo., on the south N. M., on the E. W. C. 214, on the west 1901.

Thence ran west Va. 13 33′ E. 1,250 feet intersected line between secs. 23 and 24 T. 32 N., R. 4 W., N. M. P. M., at a point 30 feet south of a stone marked on south C. C., on E. 1, on north 4 notches.

1609.5 being the place for 214 mile, I had set a sand stone marked on the N. Colo., on the S. N. M., on the E. 214 M., on the west 1901.

Thence ran west, 1,793 feet and set stone marked on N. Colo., on S. N. M., on W. 1901, being 33 feet W. of center of R. R. track at Edith.

2,998.8 feet intersected line between secs. 22 and 23 of above township at a stone marked C. C. on the S., 2 on the east and 4 notches on the north.

5,280 feet; found no corner. Thence west one mile. I identified cor. No. 217.

[fol. 958] That I reached said mile post No. 217 on November 19, and owing to the inclement weather suspended further operations until the following summer of 1902, when a further examination of the remainder of said line from mile post 217 westward to astronomical monument No. 8 near Arboles, Colorado, disclosed the said Darling line as shown by the field notes easily visible upon the ground and the mile posts in place.

I accordingly append hereto a true, just and correct map and plat of said line as re-surveyed under my direction and authority in said premises which is especially made a part hereof, and showing the original line between the state of Colorado and the territory of New Mexico, as surveyed by Eliud N. Darling in the year 1868.

While said original survey of said Darling was inaccurate as shown by the said plat herewith, since the commencement of the resurvey by myself, the Government of the United States has authorized a resurvey of the true boundary line along the entire length thereof between this state and New Mexico, which re-establishment is in considerable part completed and which has already demonstrated the inaccuracy of the said Darling survey and establishes the true boundary line along the 37th parallel to be several hundred feet north of northern limit of the Darling line at all points between said Astronomical monument No. 6 and said Astronomical monument No. 8.

Charles A. Johnson, Commissioner.

[fol. 959] STATE OF COLORADO,
City and County of Denver ss:

Charles A. Johnson being first duly sworn, deposes and says that the foregoing report of the re-survey and re-establishment of the boundary line between the State of Colorado and the Territory of New Mexico between astronomical monuments numbered six (6) and eight (8) respectively, according to the original survey and establishment thereof by Eliud N. Darling, as shown by the field notes thereof, and the map and plat thereof hereto attached and marked Exhibit "A," is true, just and correct, according to his best knowledge and belief.

Charles A. Johnson.

STATE OF COLO.,
City & Co. of Denver, ss:

Subscribed and sworn to before me this 11th day of June, 1903.
Edwin Mitchell, Notary Public. My commission expires March 13, 1907. (Seal of Edwin Mitchell, Notary Public, City and County of Denver, Colorado.)

[fol. 960] Endorsed: Report of Re-survey of the Southern Boundary Line of the State of Colorado by Chas. A. Johnson, Commissioner. Filed in the office of the Secretary of State, of the State of Colorado, on the 12 day of June A. D. 1903, at 12.20 o'clock, P. M. James Cowie, Secretary of State. Timothy O'Connor, Deputy.

[Endorsed:] This furnished document was completed by L. Hensgen, Stenographer. Date: 2, '6, 1922. Compared by Hensgen & Casey.

(Here follows plat, marked side folio page 961.)

[fol. 962] PLAINTIFF'S EXHIBIT No. 6

1,020,792. "B." J. W.

Department of the Interior,
General Land Office,
Washington, January 14th, 1922.

I hereby certify that the annexed copy of the Field Notes of the Examination of Surveys of Colorado-New Mexico Boundary Line, is a true and literal exemplification from the original field notes on file in this office.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

Geo. R. Wickham, Assistant Commissioner of the General Land Office. (Seal United States General Land Office.)

[fol. 963] Recd. with letter from F. M. Johnson, Exr., dated Aug. 29, 1903. 150,758/1903.

4—679a

Field-notes of the Examination of Surveys in Colorado-New Mexico Boundary Line executed by Howard B. Carpenter, U. S. Surveyor, under Contract No. —, dated —— —, 190-, as Examined by Frank M. Johnson, Examiner of Surveys.

Examination commenced July 8th, 1903.
Examination completed Aug. 7th, 1903.

[fol. 964] Names and Duties of Assistants

A. R. Teller, Chainman.
Chas. W. Beaman, Chainman.

Certificate

We hereby certify that we assisted Frank M. Johnson, special agent for the examination of surveys, in examining surveys of Colorado-New Mexico B'd'y Line, under contract No. —, as follows: All portions of S. B'd'y of Colorado reported herein, and that said examination has been, in all respects, to the best of our knowledge

PLAT SHOWING COLORADO AND NEW MEXICO LINE BETWEEN AST

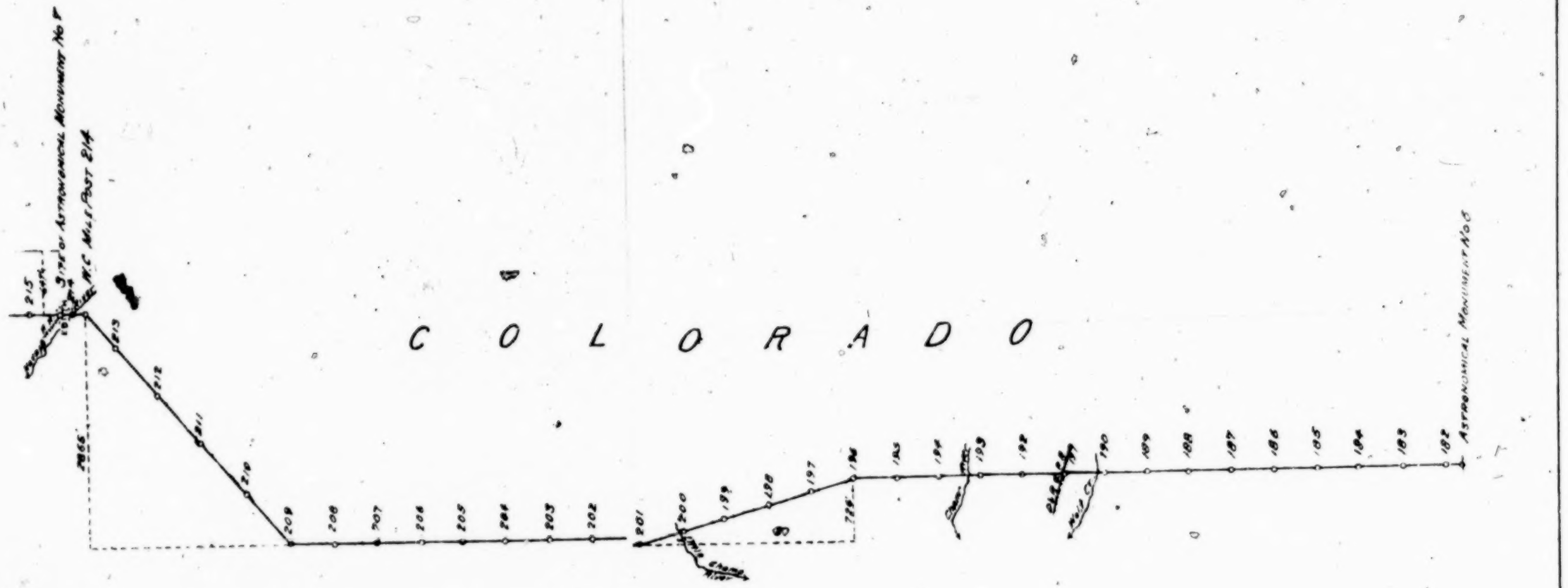
C

N E W M E X I C O

BLAIR BURWELL C.E.

INE BETWEEN ASTRONOMICAL STATIONS 6 AND 8

C O L O R A D O



SCALE 1 IN - 2 MILES.
VERT SCALE 1 IN - 1000 FT.

and belief, well and faithfully made, according to the instructions furnished by the Commissioner of the General Land Office.

A. R. Teller, Chainman. Charles W. Beaman, Chainman.

Subscribed and sworn to before me this 12th day of August, 1903. Frank M. Johnson, Examiner of Surveys.

[fol. 965] Examination of the Resurvey of the South Boundary of Colorado as Established by H. B. Carpenter

The examination survey began July 8th, 1903, and was executed with a Young and Son's light monument transit No. 7175.

The instrument was adjusted and placed in perfect adjustment before commencing the work.

The S. W. corner of the state of Kansas is a sandstone 8 ins. square and projecting 1 foot above ground, firmly set and marked 207 M. 10 ch. on N., K, 37° L. N. E. and C. on W. faces.

South 89° 57' W. of the S. W. cor. of Kansas 18.32 chs. dist. There is a limestone 16 x 9 x 8 ins. above ground, mkd. with 5 notches N. W. and 1 notch on east face, from which 3 old pits bear E., W., and South, also old mound, earth and stone S.

Returning to the S. W. cor. of Kansas I ran N. on the W. bdy. of Kansas. Over rolling prairie land.

15.22	Intersect old sandstone cor. mkd. K. on E. and C. on W. and what appears to be 18 on N. and 19 on E.	15.19
40.34	Intersect the S. E. cor. of Colorado established by H. B. Carpenter, U. S. Surveyor. This monument consists of a sandstone 12 x 12 ins. of dressed surface projecting 12 ins. above a mound of earth and stone, 6 ft. base 2 ft. high, set with its corners to the cardinal points mkd. Kan. on N. E. face " C. C. 1903 on S. E. " [fol. 966] " Okla. M. S. W. " mkd. Colo. on N. W. face.	40.36
36 x 36 x 18 6 ft. deep	Pits 24 x 24 x 18 ins. are situated N. S. and W. of monument 8 ft. dist.	

The bearings to natural objects furnished me are practically correct and are as I find them. Point of rocks bears N. 39° E. about 10 miles. Sand hill brs. S. 40° 2′ E. 19.50 chs. (measured) East edge of low sand bluff bears S. 1° 40′ E. about 10 chs.

July 8th at 4 P. M. l. m. t. I set off 37° N. on the lat. arc and 22° 33′ N. on dec'l arc and determine a meridian with the solar at the S. E. cor. of Colo.

July 9th at 12.24 a. m. l. m. t. I observe Polaris at eastern elongation in accordance with the requirement of the manuel.

July 9th at 8 a. m. l. m. t. I set off 37° N. on the lat. arc and 22° 29′ N. on the dec'l arc and determine a meridian with the Solar.

The meridians given by the solar practically agree with that determined by Polaris observations and I therefore concluded that the adjustments of the solar apparatus are satisfactory.

Thence from the S. E. cor. of Colorado previously described I run west on the S. bdy. of Colorado.

689° 58′ W.

Over rolling sand hills.

7.70 7.73 Fall .01 ch. S. of the 388th mile cor. which is an iron post 3 ins. diam. surmounted by a brass cap on which are raised letters Colo. on N. and Okla. on S. and 388 M. stamped in centre; post projects 8 ins. above a mound of earth 5 ft. base 1½ ft. high from which pits 36 x 36 x 18 ins. bear N. S. E. and W. about 6 ft. dist.

[fol. 967]

Land, rolling.

Soil, sandy.

Vegetation, grass.

Thence west on 388th mile.

Over rolling sand hills.

64.75 Old cattle trail bears N. W. and S. E. 67.00

70.00 Small gully brs. N. W. None in E.

80.03 Fall 2 lks S. of the 387th mile cor. which is an iron post similar to the one previously described, properly marked and witnessed by 4 pits 36 x 36 x 18 ins. N. S. E. and W. of cor.

Land rolling.

Soil sandy.

Vegetation grass.

NOTE.—This corner post I dug up for the purpose of examining its style. The post is an hollow pipe 3 ins. in diam. 4 ft. long, split and flared at the base so as to form 2 flanges running out 2 ins. from the pipe on two sides. The pipe is surmounted by a brass cap on which are the raised letters "Colo." on one side and "Okla." on the other. The number of the mile is stamped in the center. As all the posts are similar in design a detailed description of each one will be omitted and the words properly marked will be used.

July 9, 1903, 11 a. m.

July 9th (afternoon) spent in morning camp to the 376th mile cor.

July 10th, 1903, at 8 a. m. l. m. t. I set off 37° N. on the latitude arc and [fol. 968] 22° 21′ on the dec'l arc and determine a true meridian with the solar at the 376th mile corner, which is an iron post projecting 12 ins. above the ground (mound destroyed by cattle) properly mkd and stamped 376 M. and witnessed by 4 pits 36 x 36 x 18 ins. N. and S. E. and W. of corner.

Carpenter's notes state that the N. gable of Driscoll's ranch house bears S. 53° E. 55° E. I find the bearing to be S. 27° E.

Thence from the 376th mile cor. I run East on the 377th mile over nearly level sand flats gradually descending.

79.60
.40 Road bears N. W. and S. E.
38.29
31.71 Road bears N. 30° W. and S. 30° E.
47.10
32.90 Fence bears N. 60° W. and S. 60° E.
47.00
33.00 Road bears N. 60° W. and S. 60° E.
37.40
42.60 Enter marshy meadow bears N. and S.
20.00
60.00 West bank of Cimeron river course N. E.
10.70
69.30 East bank of Cimeron river across dry sand flat.

88.00	88.10	Fall 3 lks. N. of the witness cor. to the 377th mile cor. which is an iron post, properly mkd and set and stamped 377.1 M. projecting 6 ins. above mound of earth 5 ft. base 1 ft. high. Pits 36 x 36 x 18 ins. N. S. E. and W. of cor.
		Land gently sloping.
4" rate		Soil sandy 2nd rate.
		Vegetation, grass.
		Thence return to the 376 mile cor: previously described and run west on the 376th mile.
		Ascending gradually over rolling sand hills.
8.00	80.03	Fall 2 chs. N. of the 375th mile cor. which is an iron post properly set and mkd stamped 375 M in center, post pro-
[fol. 969]		jects 1 ft. above flat mound (partly destroyed by cattle) Pits 36 x 36 x 18 ins. N. S. E. and W. of cor
		Land rolling.
		Soil sandy, 2d rate.
		Vegetation, grass.
		After selling off, the proper declination I observe the sun on the meridian, the resulting latitude is 37° which is correct.
		Thence west on the 375th mile.
		Over rolling sand hills.
	51.08	Wire fence bears N. and S.
80.00	80.07	Fall 1 lk. S. of the 374th mile cor. which is an iron post properly mkd and set projecting 14 ins. above low mound of earth, stamped 374 M. Pits 36 x 36 x 18 ins. bear N. S. E. and W. 7 feet distant.
		Land rolling.
3d rate		Soil sandy 2d rate.
		Vegetation, grass.
		Thence west on the 374th mile
		Over rolling sand hills.
80.00	80.10	Fall 5 lks. N. of the 373d mile corner which is an iron post properly mkd and set projecting 18 ins. above low mound of earth and stamped in center of brass cap 373 M. Pits 36 x 36 x 18 ins. bear N. S. E. and W. 7 ft. distant.
		Land rolling.
3d rate		Soil sandy, 2d rate.
		Vegetation, grass.
		Thence west on 373d mile.
		Over rolling sand hills.

Ascending.

72.00 Summit of ridge bears N. and S.

Descend.

73.50 Base of slope bears N. and S.

80.00 80.02 Intersect 372d mile cor. which is an iron post 2 ft. above a low mound (partly destroyed by cattle) properly mkd. and stamped in center of brass cap 372 M. Pits 36x36x14 ins. bear N. S. E. and W. of cor. 6 ft. distant.

[fol. 970]

Land rolling.

3d rate Soil sandy 2d rate.

Vegetation, grass.

Thence west on 372d mile over rolling sand hills.

80.00 80.04 Fall 4 lks. N. of the 371st mile cor. which is an iron post 14 ins. above ground set in mound earth 4 ft. base 1 ft. high, properly set and mkd. Stamped in center 371 M. Pits 30x30x14 ins. deep bear N. S. E. and W. 6 ft. distant.

Land rolling.

3d rate Soil sandy 2d rate.

Vegetation grass.

Thence west on the 371st mile over rolling sand hills.

9.60 Intersect astronomical monument No. 8 of the Resurvey of the Colo. N. Mex. bd'y line. A sand-stone 12 ins. square 18 ins. above mound of earth and stone 8 ft. base, 4 ft. high. The monument is dressed about 14 ins. down from the top and is marked 37° N. L. on east 370.88 M. 1903 on west Colo. on North and Okla. on South. Pits 3 3x36x24 ins. bear N. S. E. and W.

From this monument I run S. and at 33.96 chs. find the iron pier at the 8th astron. sta.

Land rolling.

3d rate Soil sandy, 2d rate.

Vegetation grass.

[fol. 971] Measuring chain compared with standard and found correct

July 10, 1903.

July 11th move to the vicinity of the Okla.-N. Mex. corner on the S. bdy. of Colorado.

July 12th adjust transit with notes.

Rain in P. M.

July 13th at 12.00 a. m. l. m. t. I observe

Polaris at eastern elongation in accordance with the requirements of the manuel and mark the direction thus determined on a plug driven in the ground 5 chs. N. of my station.

At 7.30 a. m. l. m. t. I lay off the azimuth of Polaris 1° 32′ to the west and mark the meridian thus determined on a stone 5 chs. N. of my station.

At 7.40 a. m. l. m. t. I set off 37° N. on the lat. arc and 21° 58′ N. on the dec'l arc and determine a meridian with the solar. This meridian practically agrees with that determined by observations on Polaris.

The 332nd mile of the resurvey of the south boundary of Colorado is an iron post properly set and marked, projecting 6 ins. above a mound of stone 4 ft. base 1½ ft. high. No pits. Stamped in center 332 M.

Thence I run E. on S. bdy. of Colo. Over level mesa land and along S. side of canyon.

	22	Small Lin. N.
29.55	29.45	An old mound of stone 10 ft. in diam. 4 ft. high, surrounding a marked stone 10 ins. square, bears N. 1.34 chs.
[fol. 972]		Stone marked 1868. 103° W. L.
		NOTE.—This I believe to be the orignal Darling monument.
		Continue line E.
	39.60	Commence abrupt descent, bears N. W. and S. E..
40.00	42.60	Bottom of canyon, course N. W. Ascend.
	47.00	Small dr. N. W.
	50.00	Summit of E. edge of canyon; bears N. and S.
		Descend gradually.
68.00	66.80	Bottom of gulch; course S. ascend.
	80.00	Find no trace of mile corner. (Have no notes of line in this vicinity.)
		Land, rough and broken.
		Soil, lava formation 4th rate.
		Vegetation, scattering cedar and sage.
		Thence E. on the 334th mile.
		Ascending over rough broken surface.
	6.20	Summit of mesa, bears N. and S.
6.40	6.43	Fall 3 lks. N. of an iron post set in a
	8	mound of stone, 5 ft. base 3 ft. high,

	51.32	properly marked and stamped in center 333.08 M.	
N. 4½ E.	1.09	From corner a cedar tree 5 ins. in diam. bears N. 5° E. 110 lks. dist. m'k'd Colo. 333.08 M. B. T.	
S. 74½ E.	.74	A pinon 6 ins. in diam. bears S. 73° 20 E. 73 lks. dist. m'k'd Okla. 333.08 M. B. T.	
		No other trees are in limit.	
[fol. 973]		Descend over lava boulders.	
	31.00	Small dr. course N. E.	
	36.00	Base of slope; thence across open park.	
	60.00	Base of N. slope; thence along base of said slope to	
	80.06	Fall 2 lks. S. of the 334th mile monument, which is an iron post properly set and marked surrounded by a mound of stone 4 ft. base 3 ft. high. Post stamped in center 334 M. from which a X on a sandstone boulder 20x8x8 ft. bears S. 30° 45' W. 38 lks. dist. m'k'd 334 M. B. O. A X on sandstone boulder 16x16x16 ft. bears N. 6° 30' E. 204 lks. dist. m'k'd Colo. 334 M. B. O.	80.00 531 N. W. 56° 10 E.
		Land, rough and broken.	
		Soil, lava and sandstone formation; 4th rate.	
		Vegetation, pinon, cedar, sage and grass.	
		Thence E. on the 335th mile, gradually descending across open flat.	
	70.96	Fall 113 lks. S. of a dressed stone monument 12x12x20 ins. above ground, set in a mound of stone 3 ft. base 1½ ft. high and marked "Colo." on N., "C. M." on E. "N. E. cor. N. M." on S. and "C. C. 1900" on W. Pits 18x18x12 ins. bear N. S. and W. of mon. 6 ft. dist. Mound of earth and stone W.	71.00
		N. 0° 1' W. of this monument 14.01 chs. dist. is a sandstone shaft 14 ins. square 4 ft. high, firmly set and marked "Colorado" on N. "103 W. L." on S. "37 N. L." on E. and "1881" on W.	
[fol. 974]		Returning to my line at 70.96 chs. E. of the 334th mile mon. I continue E. over adobe flat.	

80.00	80.63	Fall 3 lks. N. of the 335th mile mon. which is an iron post firmly set in the ground and properly marked, stamped in the center "335 M." Pits 36x36x18 ins. bear N. S. E. and W. of corner, 7 ft. dist.
		NOTE.—Bearings given in the Carpenter notes and checked by me the next day, July 14, are practically correct and are as follows:
		N. edge of mound butte bears N. 63° 25' E. (Solar meridian) about 1 mile distant.
		Top of mound butte bears S. 89° 5' E. about 3 miles dist.
		Small conical crest of mesa bears S. 63° W. about 2 miles dist.
		Land, nearly level.
		Soil adobe 2nd rate.
		Vegetation grass.
		NOTE.—July 13 I set off the proper declination and observed the sun on the meridian. The resulting latitude is 37° + N. which is practically correct.
		Thence I run E. on the 336th mile.
		Descending gradually over adobe flat.
	26.00	Arroyo course S.
28.20	28.25	Road bears N. E. and S. W.
37.55	37.60	Wire fence bears N. and S. The cabin of David Collins bears S. 5° W. about 18 chs. dist.
		Ascend gradually.
6	55.80	Summit of ridge at low pass. Bears N. and S.
[fol. 975]		Descend into the valley of the Cariso river.
	74.00	Enter river bottom, bears N. and S.
	79.98	Fall 2 lks. N. of the 336th mile mon. which is an iron post properly marked and set in stone mound. Stamped in center "336 M."
		Note: The bearings given in the Carpenter notes are practically correct and are as follows:
		A conical butte bears N. 48° E. about a mile and a quarter dist. Wind mill tower bears S. 75° 30' E.
		Indian mound on summit of butte bears S. 68° 35' W. (Solar meridian) about 2 miles dist.
		Land, level and rolling.

Soil, adobe, 2nd rate.
Vegetation, grass.
From the 336th mile mon. the 337th and 338 mile mons. are plainly visible and are on the parallel.
Measuring chain compared with standard and found correct.

July 13, 1903.

July 14, 1903. Move camp to the vicinity of astron. monument No. 7. This monument is a sandstone shaft 12 ins. square, projecting 12 ins. above a mound stone, 7 ft. base, 2½ ft. high, marked "Colo." on N. "N. M." on S. "37 N. L." on E. and "325 M. 1903" on W. Pits 36x36x18 ins. bearing N., S., E. and W. of corner, 8 ft. dist.
This monument is at the mouth of [fol 976] Sheep Pen canon in the valley of the Cameron river and bears S. 76° 17′ W. 6.12 chs. dist. from astron. station No. 7.
The bearings from the monument given by the Carpenter notes are practically correct and are as follows:
A W. point of the Black mesa bears N. 32° 10′ E.
A cedar tree on lava mesa bears S. 54° 50′ E.
West end of red sand stone butte across the Cameron bears S. 8° 15′ E.
A conical butte capped with sandstone bears S. 27° 45′ W. about 2 miles distant.
July 14 at 2 P. M. I. m. t. I set off 37° N. on the lat. arc and 21° 47′ N. on the dec'l arc and determine a true meridian with the Solar at astron monument No. 8.
Thence I run W. on the 37th parallel on the 325th mile (Carpenter's survey).
Gradually descending over valley land.

No.	16.20	Dim road bears N. and S.
No.	38.00	Wire fence bears N. and S.
No.	74.00	Road bears N. W. and S. E.
80.00	80.09	Fall 2 lks S. of 324th mile corner, which is an iron post properly set and marked. Stamped in center "324 M." Pits 36x36x18 ins. bear N., S., E. and W. of corner 7 ft. dist.

Note: Too late to make accurate readings with the Solar to the natural objects recorded in the notes.

[fol. 977] July 15 at 12h 1m A. M. l. m. t. I observe Polaris at Eastern elongation in accordance with the requirements of the manuel and mark the direction thus determined by cutting a X on a stone 5 chs. N. of my station at the 324th mile monument.

At 2h 30m A. M. l. m. t. I lay off the azimuth of Polaris 1° 31' to the W. and mark the true meridian thus determined on a stake driven 5 chs. N. of my station.

At 8h A. M. l. m. t. I set of 37° N. on the lat. arc. and 21° 40½' N. on the dec t are and determine a meridian with the Solar. The test of the Solar apparatus is highly satisfactory and conclude that the instrument is in perfect adjustment.

Thence I run west on the 324th mile, having first tested the bearings given in the Carpenter notes to the natural objects in the vicinity. A boulder on top of butte bears N. 57° 15' E. something over one half mile dist.

E. point of sandstone butte across the river bears S. 37° 35' E.

The clump of cacti noted is not now visible.

Summit of large butte bears N. 32° W.

Gradually descending across open flat.

53.00 Small dr. course S.

69.70 Dr. course S. E.

79.75 Road bears N. and S.

79.82 Fall 6 lks. N. of 323*rd* mile cor. which [fol 978] is an iron post properly marked and set in mound of earth 3 ft. base 1 ft. high. Stamped in centre "323 M." Pits 36x36x18 ins. bear N., S., E. and W. 7 ft. dist. Top of butte bears N. 8° E. 1¼ miles dist.

Top of cliff across river bears S. 50° E.

E. edge of high cliff bears S. 12° 3' W. about 3 miles dist.

Land nearly level.

Soil adobe, 2nd rate.

Vegetation, grass and rabbitt brush.

Thence W. on the 323rd mile across level valley.

44 00 Leave valley, ascend Black mesa, bears N. W. and S. E.

Thence over series of cliffs and bad lands.

76 10 Fall 4 lks. N. of frac'l 322nd mile corner which is an iron post properly marked and firmly set in a mound of rock 3 ft. base 1½ ft. high and stamped in center 322.05 M.

Land level and broken.

Soil adobe and shale, 2nd and 4th rates.

Vegetation, grass and rabbit brush.

Note: Measuring chains tested with standard and found correct.

July 15, 1903.

July 16 at 8 A. M. I. m. t. I set off 37 N. on the lat. arc and 21° 31' N. on the dec'l arc and determine a meridian with the Solar at the 290th mile corner,
[fol. 979] which is an iron post properly marked and firmly set in a small mound of earth. Stamped in center "290 M." Pits 36x36x18 ins. bear N., S., E. and W. of corner, 7 ft. dist.

Thence I run W. on the 290th mile.

Over rolling surface.

25 30 Arroyo course S. W.

29 20 Small dr. course S.

80 11 Fall 6 lks. S. of 289th mile corner, which is an iron post firmly set in small mound and properly marked. Stamped in center "289 M." Pits 36x36x18 ins. bear N., S., E. and W. of corner 7 ft. dist.

Land rolling.

Soil, sandy, 3rd rate.

Vegetation, grass and oak brush.

Note: It is noted that all traces of the original Darling survey have been obliterated.

Thence W. on the 289th mile.

Over rolling surface.

18 00 Ascend over N. side of conical hill.

27 00 Summit of ascent slopes N.

30 00 Base of hill.

33 00 Begin descent of ravine, bears N. and S.

40 00 Bottom of ravine, course N., ascend.

42 00 Wedge of ravine bears N. and S.

Thence over undulating surface.

80 16 Fall 2 lks. S. of 288th mile corner which is an iron post firmly set in a mound of stone 3 ft. base 2 ft high. Stamped in center "288 M."

[fol. 980] Land shale formation surface undulating vegetation grass and pinon and cedar in ravines.

NOTE.—Move camp to the vicnity of astron. monument No. 6, July 16 at 11h 53m. P M. l. m. t. I observe Polaris at Eastern elongation in accordance with the requirements of the manuel and mark the direction thus determined on a plug driven in the ground 5 chs. N. of my station at astron. monument No. 6 July 17, 1903 at 7 h. 30 m. A. M. l. m. t I lay off, the azimuth 1° 32' to the W and permanently mark the true meridian thus determined.

At 8 A. M. l. m. t. I set off 37° N. on the lat. arc and 21° 21½' N. on the dec'l arc and determine a meridian with the Solar.

The meridians determined by Stellar and Solar observations practically coincide and I therefore conclude that the instrument is in perfect adjustment.

Astron. monument No. 6 is a basalt shaft 12 ins. square and projecting 18 ins. above a mound of earth and stone. Monument is dressed 12 ins. down from top and is marked "Colo." on N. 37° N. L. 1903" on the east, "N. M." on the S. and "274.158 M." on the W. Pits 36 x 36 x 18 ins. bear N. S. E. and W. of corner 8 ft. dist.

[fol. 981] NOTE.—Have not been supplied with the notes of this portion of the line so bearings to natural objects are omitted.

From astron monument No. 6 I run W. on the S. bdy of Colorado.

Over rolling surface.

12 64 Fall 5 lks. S. of the 274th mile corner which is an iron post firmly set in a mound of earth properly marked and stamped in center "274 M." Pits 36 x 36 x 18 ins. bear N. S. E. and W. of corner 7 ft. dist. 13 62

Land undulating.

Soil sandstone formation 3rd rate.

Vegetation grass and oak brush.
Thence from the 274th mile corner I run W.
Over rolling hills.

30.00 Begin ascent, bears N. and S.
39.00 Summit of ridge bears N. and S. descend.
50.20 Base of hill, road bears N. E. and S. W.
80.12 Fall 26 lks. S. of 273rd mile corner 80.00
which is an iron post firmly set in a mound of earth 5 ft. base 2 ft. high, properly marked and stamped in center 273 M.
Bearings to natural object are as follows:
E. point of the Spanish mountains bears N. 58° 30' W.
S. point of high mesa bears S. 80° W.
Land rolling.
[fol. 982] Soil sandstone formation, 3rd rate.
Vegetation, grass and oak brush.
From the 273rd mile corner I run W. over rolling surface.

10.00 Enter scattering oak brush, bears N. and S.
Continue over rolling and broken surface to
80.00 80.05 Fall 26 lks. S. of the 272nd mile corner, which is an iron post projecting 4 ins. above a mound of stone 4 ft., base 2 ft. high, properly marked and stamped in center "272 M."
Land rolling and broken.
Soil sandstone formation 3rd rate.
Vegetation grass and oak brush from the 272nd mile corner I run W. over rolling surface.

3.00 60.20 Road from Mexican placita to trinchro, bears N. 20° E. and S. 20° W. ascend.
6.00 Summit of small ridge bears N. and S. Descend.
12.00 Trail bears N. W. and S. E.
13.10 Arroyo course N. E.
13.00 Trail bears N. and S.
80.16 Fall 25 lks. S. of 271st mile corner, which is an iron post firmly set in a mound of stone 4 ft. base 2 ft. high properly marked and stamped in center "271 M."
Bearings to natural objects are as follows:
Volcanic cone bears S. 81° 47' E.
[fol. 983] Volcanic cone bears N. 81° 56' E.
Land rolling and broken.

Soil sandstone formation 3rd rate.
Vegetation grass and oak brush.
Measuring chain compared with standard and found correct.

July 17, 1903.

July 18. Heavy rain all day.

July 19. Moved to vicinity of 252nd mile corner Rain and Snow in afternoon.

July 20. At 8 a. m. l. m. t. I set off 37′ N. on the lat. arc and 20° 50′ N. on the dec'l arc and determine a meridian with the Solar at the 252nd mile corner (fractional) which is an iron post firmly set in a mound of stone 4 ft. base 1½ ft. high properly marked and stamped in center "252.2 M." from which a pine 20 ins. in diam. bears S. 52° 45′ E. 1 ch. dist. marked "252.2 M. N. M. B. T. A pine 20 ins. in diam. bears N. 36° 30′ E. 122 lks. dist. marked "252.2 M. Colo. B. T."

Thence from this corner I run W. over broken surface, descending.

3.25 Ravine course N. E. ascend.

14.00 Enter oak brush bears N. and S.

45.00 Summit of high ridge, bears N. W. and S. E. Descend.

21 lks.

[fol. 984] 60.00 Bottom of gulch course N. W. Ascend.

62.39 (copy) 62.60 Fall 20 lks S. of 251st mile corner (fractional) which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high, properly marked and stamped in center, "251.42 M."

Land rough and broken.
Soil shale 4th rate.
Vegetation pine and oak brush.

Thence from 251st mile corner (fractional) I run W. over rough surface through dense oak brush and timber.

69.60 69.56 Fall 19 lks. S. of the 250th mile corner (fractional) which is an iron post firmly set in a mound of stone 4 ft. base 2 ft. high properly marked and stamped in center "250.55 M." from which a pine 14 ins. in diam. bears S. 15° E. 31 lks. dist.

A pine 15 ins. in diam. bears S 48° 15′ W. 51 lks. dist.

A pine 18 ins. in diam. bears N. 79° W. 25 lks. dist.

A pine 16 ins. in diam. bears N. 7° 50′ E. 62 lks. dist.
All properly marked.
At noon I set off the proper declination on the arc and observe the sun on the meridian the resulting latitude is 37° which is practically correct.

July 20, 1903.

July 21. Move 10 miles en route to astron. mon. No. 5.
July 22. Move 6 miles to astron. mon. and camp.

[fol. 985] July 22. At 8:30 A. M. l. m. t. I set off 37° N. on the lat. arc and 20° 27′ N. on the decl. arc and determine a meridian with the solar at the 217th mile corner, which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high, properly marked and stamped in center "217 M." from which a pine 10 ins. in diam. bears N. 31° E. 134 lks. dist. N. 27 E. 125
A pine 14 ins. in diam. bears S. 49° 15′ E. 226 lks. dist. S. 25° E. 35°
A pine 16 ins. in diam. bears S. 25° 35′ W. 225 lks. dist. S. 15½ W.
A pine 17 ins. in diam. bears N. 35° W. 41 lks. dist. N. 36½ N. 20° W. 60
All properly marked.
Thence I run E. on the 218th mile descending through brush and pine timber.

14.00 Base of mountain bears N. E. and S. W.
15.00 Wagon trail from the Vermejo to the Las Animas crossing the San Francisco pass. 14.87
17.00 E. prong of the Vermejo course S. W. 17.68
19.03 Fall 7 lks. S. of astron. mon. No. 5, which is a limestone shaft 12 ins. square projecting 14 ins. above a mound of earth and stone 8 ft. base, 3 ft. high. Pits 36 x 36 x 18 ins. bear N. S. E. and W. of corner 8 ft. dist. Monument is dressed 12 ins. down from the top and is marked "Colo." on N. "37° N. L." on E. "N. M." on S. and "217.237 M., 1903" on W. 18.97
Bearings to natural objects are as follows:
Vermejo Peak bears S. 27° 25′ W.
[fol. 986] A rocky peak bears S. 76° 40′ W.

			Middle of three peaks of rock bears N. 60° W. about 1½ miles dist.
			Begin gradual ascent.
	26.	24.00	Small dr. course S. W.
		30.00	Leave valley and begin sharp ascent of mountain.
	66.32	63.00	Summit of spur, slopes N. W.
			Descend into gulch.
	79.54	74.20	Bottom of gulch, course N. W.
			Ascend.
		79.70	Summit of main ridge bears N. W. and S. E.
	80.00	80.20	Fall 27 lks. N. of 218th mile corner, which is an iron post, firmly set in a mound of stone 4½ ft. base 2 ft. high, properly marked and stamped in center "218 M." from which a pine 12 ins. in diam. bears S. 38° 15′ E. 167 lks. dist. A pine 10 ins. in diam. bears S. 38° W. 205 lks. dist.
			Both properly marked.
			Land mountainous.
			Soil sandstone formation 3rd rate.
			Vegetation grass, pine and oak brush.
			Thence from the 218th mile corner I run E. on the 219th mile. Descending over broken surface, through scattering timber.
		23.60	Drain, course S.
		66.00	Begin sharp descent into ravine.
	75.60	74.00	Bottom of ravine, 600 ft. deep, brook course S. W. ascend.
		80.00	No corner set.
			Land mountainous.
			Soil, sandstone formation, 4th rate.
[fol. 987]			Vegetation, grass, pine and oak brush.
			Continue my line E. on 220th mile, ascending steep mountain side.
		24.12	Fall 32 lks. N. of 219th mile corner (fractional) which is an iron post firmly set in a mound of stone 3 ft. base 2 ft. high, properly marked and stamped in center "219.3 M." from which an aspen tree 8 ins. in diam. bears N. 16° 45′ E. 50 lks. dist.
			A pine tree 14 ins. in diam. bears S. 21° 35′ W. 229 lks. dist.
			An aspen tree 5 ins. in diam. bears N. 8° 20′ W. 50 lks. dist.
			All properly marked. Line from 219.3 M.

24.00

N. 15¼ 60
S. 21½
W. 228
N. 8¼
W. 51

	25.00	Summit of ridge bears N. E. and S. W. Descend.		
	65.00	Ravine, course S. Ascend.		
	72.00	Hillside dr. course S. W.		
	80.09	Fall 20 lks. N. of the 220th mile corner, which is an iron post firmly set in a mound of stone 4 ft. base 2 ft. high, properly marked and stamped in center "220 M." from which a pine 14 ins. in diam. bears N. 22° E. 168 lks. dist.	8.00	N. 26° E. 168
		An aspen 8 ins. in diam. bears S. 24° E. 48 lks. dist.		S. 24½ E. 48
		A pine 18 ins. in diam. bears S. 34° W. 48 dist.		S. 33½ W. 48
		An aspen 6 ins. in diam. bears N. 32° 15 W. 85 lks. dist.		N. 30 W. 87
		All properly mkd.		
		Land mountainous.		
		Soil, sandstone formation, 4th rate.		
		Vegetation, grass, pine and oak.		
[fol. 988]		NOTE.—Measuring chain compared with standard and found correct.		
		July 22, 1903.		
		July 23. Move 40 miles by trail.		
		July 24. Move 8 miles to 193rd mile corner.		
		At 10 a. m. l. m. t. I set off 37° N. on lat. arc and 20° 2′ N. on the dec'l arc and determine a meridian with the solar at the 193rd mile corner, which is an iron post firmly set in a mound of earth, 5 ft. base 2 ft. high, properly marked and stamped in center "193 M." Pits 36x36x18 ins. bear N. S. E. and W. of corner, 7 ft. dist.		
		Thence I run E. on the 194th mile over level mal pai desert.		
21.00	20.60	Road bears N. and S.		
29.15	29.60	As equi; course N. W.		
30.00	29.90	Fence bears N. W. and S. E. Enter cultivated land.		
	42.00	Cross fence bears N. E. and S. W.		
61.48	61.60	Adobe house on line.		
		Enter the Mexican plaza of Costillo.		
		Thence through series of corrals.		
74.00	73.70	The Rio Costillo, course N.		
80.00	80.14	Fall 14 lks. S. of the 194th mile corner, which is an iron post firmly set in a mound of earth 4 ft. base 2 ft. high, properly marked and stamped in-		

center "191 M." Pits 36x36x18 ins. bear N. S. E. and W. of corner, 6 ft. dist. from which a cottonwood tree 28 ins. in diam. bears S.

5.22 3.20 22° E. 320 lks. dist.
.78 2.82 A cottonwood tree 32 ins. in diam. bears N. 70° 30' E. 291 lks. dist. Both properly marked.

[fol. 989]

Bearings to objects are as follows:
Spire of Cathedral in Costillo, bears S. 5° 20' W. about 3/4 of a mile dist.
Land nearly level.
Soil lava formation 3rd rate.
Vegetation sage and grass.
Returning to the 193rd mile corner I set off the proper declination and observe the sun on the meridian. The resulting latitude is 32° N. which is correct.
Thence from the 193rd mile corner I run W. over level mal pai desert.

80.03 Fall 7 lks. N. of the 192nd mile corner, which is an iron post firmly set in a mound of earth 5 ft. base 2 ft. high, properly marked and stamped in center "192 M." Pits 36x36x18 ins. bear N. S. E. and W. of corner, 6 ft. dist. 8.09
Land level.
Soil lava formation 4th rate.
Vegetation, grass, greasewood and sage brush.
From 192nd mile corner I run W. over level mal pai desert.

NOTE.—Clouds obscure the summit of Sierra Blanca so no bearings can be taken.

Cathedral spire in Costello bears S. 61° 59' E.

67.00 Road bears N. E. and S. W.
80.02 Fall 8 lks. N. of the 191st mile corner, which is an iron post firmly set in mound of earth 5 ft. base 2 ft. high, properly marked and stamped in center "191 M." Pits 36x36x18 ins. bear N. S. E. and W. of corner 6 ft. dist.

[fol. 990]

Clouds hanging over mountain peak prevent accurate readings.
Cathedral spire in Costello not visible.
Land level.
Soil lava formation, 4th rate.

Vegetation, grass, sage brush and greese wood.

Thence from 191st mile corner I run E., gradually descending over mal pai desert.

80.60 80.61 Fail 8 lks. N. of the 190th mile corner, which is an iron post firmly set in a mound of earth 5 ft. base 2 ft. high properly marked and stamped in center "190 M." Pits 36x36x18 ins. bear N. S. E. and W. of corner 6 ft. dist.

Mountain peak somewhat obscured by clouds.

The following bearings are given to what I judge to be the peaks mentioned in the notes:

Sierra Blanca, bears N. 12° 33′ E.

Ute mountain, bears S. 42° W.

Chifolo Peak bears S. 18° 30′ W.

Land level.

Soil lava formation 4th rate.

Vegetation, grass, sage brush and greese wood.

In order to test the bearing of line run today, with reference to a Polaris meridian, I observe the star at eastern [fol. 991] elongation and mark the direction thus determined on a plug 5 chs. N. of my station at the 190th mile corner.

July 24, 1903.

July 25.—I lay off the azimuth of Polaris 1° 32′ to the W. and mark the true meridian. Then test my line between the 190th and the 192nd mile corners and find the results of yesterday's work satisfactory.

Move 20 miles to Antonito, Colo.

July 26.—Rain all day.

July 27 at 8 a. m. l. m. t. I set off 37° N. on the lat. arc and 19° 25′ on the decl arc and determine a meridian with the solar at astron. mon. No. 4, which is a white decomposed granite mon. 12 ins. square dressed 12 ins. down from the top firmly set in a mound of stone 6 ft. base 3 ft. high. Pits 36x36x18 ins. bear N. S. E. and W. 6 ft. dist. Monument is marked "Colo." on N., "37° N. L." on E., "N. Mex." on S. and "166.76 M. 1903" on W.

		Thence from monument 1 run E. Ascend lava bluff.
	2.00	Top of bluff.
		Thence over final pai desert.
9.22	19.22	Fall 4 lks. of the 167th mile corner, which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high, properly marked and stamped in center "167 M."
[fol. 992]		San Antonio mountain bears S. 0° 3' E.
		Land level.
		Soil lava formation.
		Vegetation, sage brush and greese wood.
		From the 167th mile corner I run E. over level nal pai desert.
63.45	57.80	Wagon trail bears N. and S.
	71.00	Small dr. course N.
80.00	79.98	Fall 7 lks. S. of 168th mile corner, which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high, properly marked and stamped in center "168 M."
		Land level.
		Soil lava formation 4th rate.
		Vegetation, sage brush and greesewood.
		From the 168th mile corner I run E. over level nal pai desert.
	20.00	Begin desert.
27.81	27.87	Center of track of D. and R. G. R. R. between Antonito and Santa Fe, bears N. and S.
		Ascend gradually.
	43.00	Summit of ascent bears N. and S.
		Thence over level desert.
80.00	80.04	Fall 8 lks. S. of the 169th mile corner, which is an iron post firmly set in mound of rock 5 ft. base 2 ft. high, properly marked and stamped in center "169 M."
		Water tank in Antonito bears N. 14° 30' W.
		Land rolling.
[fol. 993]		Soil lava formation 4th rate vegetation sage brush and greesewood.
		From the 169th mile corner I run E. over level nal pai desert.
	80.01	Fall 8 lks. of the 170th mile corner, which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high, properly marked and stamped in center "170 M."

Land level.
Soil lava formation, 4th rate.
Vegetation, sage brush and greasewood.

NOTE.—Measuring chain compared with standard and found correct.

July 27, 1903.

July 28. I set off the proper declination at the 150th mile corner (fractional) and observe the sun on the meridian. The result is lat. is 37° + N. which is practically correct.

At 1 h. 30 m. P. M. L. m. t. I set off 37° N. on the lat. arc and 10° 8' N. on the dec'l arc and determine a meridian with the Solar, at the 150th mile corner (fractional) which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high, properly marked and stamped in center "150 087 M." from which a Spruce tree 16 ins. in diam. bears N. 32° W. 56 lks. dist.

[fol. 394] A spruce 10 ins. in diam. bears S. 12° E.
311½ 83 82 lks. dist.
Both properly marked.
Thence I run W. over mountainous surface.

	1.60	Descend bluff 100 ft. high.
	1.20	Base of bluff.
130	4.35	Center of track of D. and R. G. R. R. bears N. W. and S. E.
	1.60	Descend over rock slide.
	12.60	Base of slide.
		Descend gradually.
	13.50	Small brook course S. W.
	26.60	Rio Los Pinos course S. E., ascend
	30.00	Top of bench.
	42.00	Enter aspens, bears N. and S.
87.60	87.28	Fall 2 lks. N. of the 149th mile corner, which is an iron post firmly set in a mound of rock 4 ft. base 2 ft high, properly marked and stamped in center "149 M." from which an aspen tree 5 ins. in diam. bears N. 70° E. 146 lks. dist.
N 74½ E.		An aspen 8 ins. in diam. bears S. 14° E.
114.75		80 lks. dist.
		An aspen 3 ins. in diam. bears S. 60
102 W		W. 80 lks dist.
		An aspen 4 ins. in diam. bears N. 51°

N. 51¼ W.-24 W. 24 lks. dist.
Land mountainous.
Soil volcanic formation, 3rd rate.
Vegetation, spruce pine and aspen.
From the 149th mile corner I run W. ascending through heavy timber on E. slope of the Conejos Range.
14.00 Summit of spur slopes N.
Continue on N. slope ascending
43.00 Dr. N.
[fol. 995] 80.16 Fall 6 lks. S. of the 148th mile corner, which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high properly marked and stamped in center, "148 M."
Land mountainous.
Soil sandstone and volcanic formation, 4th rate.
Vegetation, spruce pine and aspen.
July 28, 1903.

July 29 at 11 h. 2 m. P. M. l. m. t. I observe Polaris at eastern elongation at astron. mon. No. 3, which is a sandstone shaft 12 ins. square dressed 14 ins. down from the top and set in a mound of stone 5 ft. base 2 ft. high. Mon. is marked "Colo." on N. "37° N. L." on E. "N. Mex." on S. and "117.075 M. 7902" on W.

July 29, 1903.

July 30 at 7 h. 30 m. A. M. l. m. t. I lay off the azimuth of Polaris 1° 32′ to the W. and establish and mark a true meridian.
At 8 A. M. l. m. t. I set off 37° N. on the lat. arc and 18° 44′ N. on the dec'l arc and determine a meridian with the Solar.
The indication thus determined practically agrees with that determined by Stella observation and I therefore consider the instrument in perfect adjustment.
The following bearings to natural objects are given with reference to the true meridian.
[fol. 996] Summit of high bluff on S. side of Navajo cañon bears N. 75° 22′ E.
High smokestack on saw mill bears S. 79° 3′ E.

		Monument on small mesa bears S. 50° 38′ E.
		Corner of grist mill bears N. 24° 55′ E.
		Mes. from 117 M. 6 chs. W. topography.
		From astron. mon. No. 3 I run E. on the 118th mile, over level cultivated land.
9.91	10.00	Coyote creek, 20 lks. wide course S.
15.90	16.00	Lumber R. R. bears N. W. and S. E.
	25.20	Road through field bears N. and S.
36.80	36.85	Wagon road bears N. and S.
53.20	53.20	House on line.
54.70	57.00	Center of main street, town of Edith, bears N. E. and S. W.
		NOTE.—The larger portion of the town is S. of line.
58.30	58.20	Lumber R. R. bears N. E. and S. W.
	60.00	Descend into the valley of Navajo river, bears N. E. and S. W. Enter dense willows.
75.30	75.00	Navajo river, 1 ch. wide course S. E.
	80.00	No corner set. Continue in willows.
	86.20	Leave willows, ascend 30 ft. bank bears N. E. and S. W. Enter pine timber.
86.80	86.90	Flume course S. W.
87.00	87.00	Wagon road from Edith to Lumberton, N. M.
88.00	88.24	Fall 2 lks. N. of the 118th mile corner (fractional) which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high properly marked and stamped in center "118.1 M." from which a pine 12 ins. in diam. bears S. 60° 33′ E.
[fol. 997]		250 lks. dist. marked "N. M. 118.1 M. B. T."
		Land, level river valley.
		Soil, sandy loam, 1st rate.
		Vegetation, grass, willow and pine.
		Thence from 118.0 mile corner I run E. on the 119th mile, ascending over rough mountainous country.
	57.50	Summit of spur sloping N.
	72.00	Dr. course N. E.
		Thence along steep N. slope
	72.20	Fall 4 lks. N. of the 119th mile corner which is an iron post firmly set in a mound of stone 4 ft. base 2 ft. high. properly marked and stamped in center "119 M."

72.00

Land mountainous.
Soil sandy 3rd rate.
Vegetation, pine and oak brush.
Thence from 119th mile corner, I run E. on the 120th mile, descending over rough mountainous surface.

16.00 Small Dr. N.
40.00 Bottom of cañon, course N. W. 39
40.20 Brook course N. W.
41.00 Lumber road, bears N. W. and S. E. 40 50
Ascend E. wall of cañon.
89.18 Fall 1 lk. S. of the 120th mile corner, which is an iron post firmly set in a mound of earth 4 ft. base 1½ ft. high properly marked and stamped in center "120 M." Pits 36 x 36 x 18 ins. bear N. S. E. and W. of corner 6 ft. dist.
A pine 16 ins. in diam. bears N. 40° E. 65 lks. dist.

[fol. 998]

517° 40' E. 76 A pine tree 10 ins. in diam. bears S. 18° E. 73 lks. dist.
A pine tree 16 ins. in diam. bears
S. 55° W. 21 S. 34° 30' W. 90 lks. dist.
A pine tree 10 ins. in diam. bears
N. 35° W. 55 N. 35° W. 55 lks. dist.
All properly marked.
Land mountainous.
Soil sandy, 4th rate.
Vegetation, pine, spruce and aspen.
Measuring chains compared with standard and found correct.

July 30, 1903.

July 31 at 7 P. M. I. m. t. I set off 37° N. on the lat. arc and 18° 24' + N. on the decl. arc and determine a meridian with the solar at the 89th mile corner, which is an iron post found firmly set in a mound of earth 5 ft. base 2 ft. high, properly marked and stamped in the center, "89M." Pits 36 x 36 x 18 ins. bear N. S. E. and W. of corner 6 ft. dist.

Thence I run W. over mesa country, through sage brush and pinon.

29 66 20.00 Wagon road bears N. 20° W. and S. 20° E.
49.25 Road bears N. W. and S. E.
53.00 Edge of mesa, bears N. and S.
60.00 Leave timber, bears N. and S.

80.00 80.05 Fall 1 lks. N. of the 88th mile corner, which is an iron post firmly set in a mound of earth 5 ft. base, 2 ft. high, properly marked and stamped on the center "88 M." Pits 36 x 36 x 18 ins. bear N. & E. and W. of corner 6 ft. dist.

[fol. 999] Bearings to natural objects are as follows:

Cone shaped timbered peak bears N. 2° E.

E. end of bluff bears S. 18° 30' W.

High ridge bears N. 8° W.

Land, rolling.

Soil, adobe 3rd rate.

Vegetation, pinon, cedar, sage, brush and greasewood.

Returning to the 88th mile corner, I run E. through pinon and cedar timber.

11.50 Begin descent through timber.

20.00 Edge of arroyo, course S.

21.00 Darling's old astron. mon. No. 8 bears S. 32° 23' E. 10 chains dist.

NOTE.—This monument was evidently overlooked by Mr. Carpenter.

No further work done this day on line.

At camp I observe Polaris at eastern elongation in accordance with the requirements of the manual and establish a true meridian.

July 31, 1903.

August 1, at 8 A. M. I re-test the Solar apparatus by comparing its indications with the true meridian established last night. The result is highly satisfactory.

Tience from the 88th mile corner, described yesterday I run W. over rolling surface.

26.00 Small dr. S.

[fol. 1000] 28.00 Arroyo course S. W. ascend.

46.00 Top of ridge, bears N. and S. Descend.

75.00 Arroyo course S. E.

80.00 80.09 Fall 2 lks. N. of the 87th mile corner, which is an iron post firmly set in a mound of stone, 5 ft. base, 2 ft. high, properly marked and stamped in center "87 M." pits 36 x 36 x 18 ins. bear N. & E. and W. of corner 6 ft. dist.

Bearings to natural objects are as follows:
Timbered conical peak bears N. 13° 45' E. Tree on top of conical peak S. of San Juan river bears S. 38° 22' E.
E. end of high bluff bears S. 7° 30' W.
High ridge bears N. 81° 30' W.
Land rolling.
Soil adobe, 3rd rate.
Vegetation sage brush and greese wood.
Thence from the 87th mile corner I run W. over rolling surface.

28.20 Road bears N. W. and S. E. from Vallejo to Roscada.

72.50 73.00 Arroyo, course N.

80.00 80.04 Fall 3 lks. N. of the 86th mile corner, which is an iron post formerly set in a mound of stone 5 ft. base 2 ft. high, properly marked and stamped in center "86M."
Bearing to natural objects are as follows
Timbered conical peak bears N. 23° 45' E.
Tree on conical peak S. of San Juan river bears S. 48° 30' E.

[fol. 1001]

Point on bluff bears S. 23° 40' E.
Chimney in section house at Vallejo bears N. 0° 52' E.
Land rolling.
Soil, adobe, 3rd rate.
Vegetation, sage brush and greese wood.
At noon I set off the proper declination and observe the sun on the meridian at the 86th mile corner. The resulting lat. is 37° N. which is correct.
Measuring chain compared with standard and found correct.

August 1, 1903

August 3 at 8 a. m. l. m. t. I set off 37° N. on the lat. arc and 17° 44' N. on the decl. arc and determine a true meridian with the Solar, at the 65th mile corner (fractional) which is an iron post firmly set in a mound of stone, 4 ft. base 2 ft. high. Properly marked and stamped in center "64.288 M."
Thence I run W. over river valley.

4.60 Fence, some cultivated fields bears N. and S.

4.10 Road from Durango to Farmington, bears N. and S.

8.35 Irrigation ditch, course S. E.

10.00 Begin ascent of steep rocky hill.

13.08 Fall 2 lks. S. of the astron. mon. No. 2, which is a sandstone shaft 18 x 12 ins. and projecting 20 ins. above mound of rock, 6 ft. base 2½ ft. high and marked "Colo." on N. "37 N. L. 1902" on E., "N. Mex." on S. and "64.823 M." on W. A pinon tree 8 ins. in diam. bears S. 65° W. 100 lks. dist. marked "N. M. 64.823 M., B. T."

[fol. 1002]

A pinon 8 ins. in diam. bears N. 25° W. 76 lks. dist. marked "Colo. 64.823 M., B. T."

Bearings to natural objects are as follows:

Point of bluff across the Rio Los Anamys bears S. 80° E.

Point of bluff down the river bears S. 7° W. E.

Continue my line ascending.

14.10 Top of bench bears N. and S.

37.40 Ascend bluff, bears N. and S.

68.00 Summit of ridge bears N. and S.

71.60 Dry gulch, course N. E.

79.10 Fall 8 lks. N. of the 64th mile corner, which is an iron post firmly set in a mound of stone 5 ft. base 2 ft. high, properly marked and stamped in the center "64 M."

A cedar tree 14 ins. in diam. bears S. 53° W. 65 lks. dist. marked "N. M. 64 M., B. T."

A cedar tree 8 ins in diam. bears N. 47° W., 80 lks. dist. marked "Colo. 64 M. B. T."

Land, rough and broken.

Soil, sandstone formation, 3rd rate.

Vegetation, cedar and pinon.

Thence from 64th mile corner I run W. over rough mountainous surface, ascending.

10.00 Summit of ridge bears N. and S.

79.50 Descend rock cliff, bears N. W. and S. E.

[fol. 1003]

80.22 Fall 3 lks. N. of the 63rd mile corner which is an iron post firmly set in a mound of stone, 6 ft. base, 3 ft. high, 8.00

properly marked and stamped in center "63 M."

Land, rough and broken.
Soil, sandstone formation, 4th rate.
Vegetation, pinon and cedar.
Measuring chain compared with standard and found correct.

August 3, 1903.

August 4. Return to Durango, Colo.
August 5. Remove to Mancos, Colo.
August 6, at 8 a. m. l. m. t. I set off 37° N. on the lat. arc and 16° 37' N. on the decl. arc and determine a true meridian with the Solar, at the 25th mile corner, which is an iron post firmly set in a mound of stone 5 ft. base, 2 ft. high, properly marked and stamped in center "25 M."

A pinon tree 8 ins. in diam. bears S. 53° W. 87 lks. dist. marked "N. M. 25 M., B. T."

Thence from corner I run E. on the 26th mile, over level mesa land.

	6.20	Small canon drains N. E. ascend.
	12.00	Summit of rocky ridge bears N. and S.
[fol. 1004]	39.70	Gulch, drains N. E.
	60.50	Summit of steep ridge bears N. and S.
		Thence over rough and broken ground.
	70.00	Descend rock ledge, bears N. and S.
73.00	73.19	Fall 2 lks. N. of the 26th mile corner (fractional) which is an iron post firmly set in a mound of rock 5 ft. base 2 ft. high, properly marked and stamped "25.912 M."

6.00

NOTE.—Corner stands on W. wall of canon.

Land, high mesa cut by canons.
Soil sandy, 4th rate.
Vegetation, dwarfed pinon and sage brush.

From 26th mile corner (fractional) I run E. over high mesa country.

	1.00	Descend wall of canon, bears N. E. and S. W.
	25.00	Bottom of canon, course N. E. ascend.
32.00	33.00	Top of wall bears N. E. and S. W.
		Thence over level sandy desert.

	55.00	Begin descent into canon, bears E. and S. W.	
	68.00	Base of canon, course N. E.	
88 20	88.50	Fall 4 lks. S. of 27th mile corner (fractional) which is an iron post firmly set in a mound of stone 6 ft. base $2\frac{1}{2}$ ft. high, properly marked and stamped in center "27.015 M"	
		Land, high mesa.	
		Soil sandy, 4th rate.	
		Vegetation, pinon and sage brush.	
fol. 1005]		Thence from 27th mile corner (fractional) I run E. over high mesa land.	
	28.00	Gulch, course N. E. ascend.	29.00
	38.00	Summit of ridge bears N. and S. descend.	
	61.00	Begins descent of canon, bears N. and S.	
	79.00	Bottom of canon, course N. W. ascend.	
	92.00	Top of mesa, bears N. and S.	
	92.90	Fall 1 lks. N. of the 28th mile corner (fractional) which is an iron post firmly set in a mound of stone 6 ft. base $2\frac{1}{2}$ ft. high, properly marked and stamped in center "20.175 M."	92.80 28.175M.
		Land rough and broken.	
		Soil sandstone formation, 4th rate.	
		Vegetation, pinon, cedar and sage brush.	
		Thence from 28th mile corner (fractional) I run E. over broken mesa country, ascending.	
	15.00	Top of ridge, bears N. W. and S. E.	
	40.00	Bottom of canon, course N. W.	
11	80.11	Fall 5 lks. N. of the 29th mile corner which is an iron post firmly set in a mound of earth 5 ft. base 2 ft high, propedly marked and stamped in center "29 M." Pits 36 x 36 x 18 ins. bear N. S. E. and W. of corner, 6 ft. dist.	80.00
		Land rough and broken.	
		Soil rocky, 4th rate.	
		Vegetation, pinion and sage brush.	
		I test the levels and line of collimation	
fol. 1006]		of transit and find them correct.	
		In order to test the Solar apparatus, and compare its indications with the meridian determined by observation on Polaris, I proceed as follows: at 4 P. M. l. m. t. I set off 37° N. on the lat. arc and 16° 51′ N. on the dec'l arc and determine a meridian with the Solar.	
		At 10 h 31 m P. M. l. m. t. I observe	

Polaris at eastern elongation, and mark the true meridian on a plug 5 chs. N. of my station.

August 6, 1903.

August 7, 1903, at 8 a. m. l. m. t. I set off 37° N. on the lat. arc and 16° 40′ N. on the decl arc and determine a meridian with the Solar.

The Solar meridians determined by a. m. and P. M. observations, practically coincide with the meridian determined by observations of Polaris. I consider the instrument in perfect adjustment.

Thence from the 29th mile corner previously described I run E. over rough broken country.

	16.00	Top of ridge bears N. and S.
	22.00	Small dr. course S.
59.60	60.00	Descend canon wall, bears N. W. and S. E.
	77.00	Bottom of canon, course S. ascend.
112.62	112.75	Fall 2 lks. N. of the 30th mile corner (fractional) which is an iron post firmly set in a mound of stone 6 ft. base, 3 ft. high, properly marked and stamped in center "30.408 M.

[fol. 1007]

Ute peak bears N. 38° 20′ W.

Main mast of Ship Rock bears S. 41° 44′ W.

Land rough and broken.

Soil rocky, 4th rate.

Vegetation, pinon and sage brush.

August 7th, 1903.

Frank M. Johnson, Examiner of Surveys.

[fol. 1008]

Recommendation

The resurvey of the south boundary of Colorado by Mr. H. B. Carpenter U. S. Surveyor is in general an excellent piece of work.

The corner monuments are uniform in character and are substantially set. In every portion of the line examined pits were dug when practicable. In all other portions a conspicuous stone mound was constructed around the corner. All trees obtainable for bearing trees were used.

The small difference in measurement may be accounted for in the rough country by the different methods employed by Mr. Carpenter & myself.

The alinement of the western portion & the extreme eastern portion of the line closely approximates the parallel.

Between astro. mons. 4 & 6 the line seems to run considerably off parallel. To greatest difference in bearing according to Mr. Carpenter's & my findings is between the 204th mile & ast. mons. 5 & 6. I find the average bearing between ast. mons. 5 & 6 to be S. 89° 49' E. West from ast. mon. 5 the bearing is about S. 89° W. These bearings were tested several times. The tangent run by Mr. Carpenter bet. ast. mons. 5 & 6 is N. of the parallel or established line, & the cuttings west of astron. mon. 5 are considerably S. of the line.

It would seem that astron. mon. 5 is not on the parallel.

Mr. Carpenter's instrumental work appears to be excellent & the
[fol. 1009] work taken as a whole is of the highest order.

Frank M. Johnson, Examiner of Surveys.

[fol. 1010] Oath of Special Agent for the Examination of Surveys

I, Frank M. Johnson, special agent for the examination of surveys, do solemnly swear that, in pursuance of instructions received from the Commissioner of the General Land Office, bearing date the — day of ——, 190-, and the — day of ——, 190-, I have well, faithfully, and truly, in my own proper person, and in strict conformity with the instructions furnished by said Commissioner, examined all those parts or portions of Colorado-New Mexico boundary line reported herein, —— Meridian, in the ——, surveyed by Howard B. Carpenter, U. S. Surveyor, under contract No. —, dated —— —, 190-, as are represented in the foregoing field notes as having been examined by me; and I do further solemnly swear that the foregoing are the true field notes of such examination.

Frank M. Johnson, Examiner of Surveys.

Subscribed and sworn to before me this 29th day of August, 1903. Chas. J. Hunsaker. My Com. expires May 6, 1906.

[fol. 1011] PLAINTIFF'S EXHIBIT No. 7

E. 34459-150758, 1903. 14079-16659, 1904.

Ans'd March 3, 1904. 421.82.

Department of the Interior,
General Land Office,
Washington, D. C., February 25, 1904.

Subject: Acceptance of Resurvey

H. B Carpenter, U. S. Surveyor, Cheyenne, Wyoming.

SIR: I am in receipt of your letters of the 18th and 20th of January, 1904, transmitting returns of the resurvey of the south

boundary of Colorado, consisting of three books of field notes and eleven diagrams in triplicate, numbered as plates 1 to 11 inclusive.

I am also in receipt of the report and astronomical notes of Arthur D. Kidder, Examiner of Surveys, detailed to inspect the astronomical work on this line, who accompanied Astronomer MacConnel while the latter was engaged under your direction in making the required observations for latitude.

I have also received the report of Frank M. Johnson, Examiner of Surveys, who inspected various portions of the boundary line as to whether the re-establishment of the said line conformed to the requirements of the contract and the special instructions in respect to sufficiency of markings and accuracy of measurement and alinement.

Examiner Kidder concludes his report upon the astronomical [fol. 1012] features of the resurvey as follows:

"I therefore believe that the determinations have been well made and in accordance with Mr. Carpenter's special instructions and knowing that the observations were faithfully and honestly executed I respectfully recommend the acceptance of this part of the work."

Examiner Johnson made a thorough and exhaustive inspection of the field work of the resurvey going over portions of every section of the line between astronomical monuments.

In a preliminary report to this office he stated that in retracing the boundary line between three of the eight astronomical monuments (Nos. 4, 5 and 6), he found the line, as re-established, to diverge several minutes from a true east and west line and, with a view to ascertaining whether an error existed in the astronomical work of locating the stations to which you closed your line, I directed Mr. Kidder to proceed to the above named stations, situated in the mountainous part of the line and re-determine the latitude. He reported that he found, after a careful re-observation, that the locations were correctly determined and that any divergence from a true east and west line must be due to the deviation of the plumb-line caused by the proximity of large mountain ranges. It is found that an accurate ascertainment of the amount of error to allow for the attractive force of large masses of earth, when making observations upon celestial bodies for the purposes of obtaining latitudes, involves elaborate experience with the pendulum at the various points where observations are taken. These experiments, however, were not contemplated in the establishment of this boundary and were not included in your special instructions, consequently the said deviation [fol. 1013] is not attributable to negligence on your part or that of the astronomer working for you.

Examiner Johnson sums up his report with the following remark:

"Mr. Carpenter's instrumental work appears to be excellent. The corner monuments are uniform in character and substantially set. The work taken as a whole is of the highest order.

After a careful scrutiny of the field notes and diagrams, and the report of the Examiners as above mentioned, I am of the opinion that the re-establishment of the south boundary of Colorado is in conformity with the terms of your contract and special instructions and is hereby accepted.

Very respectfully, W. A. Richards, Commissioner.

(Here follows Plaintiff's Exhibit No. 8, marked side folio page 1014.)

[fol. 1015] PLAINTIFF'S EXHIBIT No. 9

Report of an investigation in alleged overlaps along the Colorado-New Mexico State Boundary in Tps. 32 N., Rs. 1 and 4 W., and R. 1 E. N. M. P. M., Involving H. E. 010492, David Lohman et al.

Department of the Interior

General Land Office

Office of Assistant Supervisor of Surveys,

Santa Fe, N. M., November 20, 1916.

Mr. Frank M. Johnson, Supervisor of Surveys, Federal Building, Denver, Colorado.

SIR: Acting upon your instructions of August 30, and October 14, 1916, I have the honor to submit the following report of an investigation made by me, with your personal assistance on the ground, September 20th to October 4th and October 28th to November 4th, 1916, of alleged overlaps along the Colorado-New Mexico State Boundary in Townships 32 North, Ranges 1 and 4 West, and Range 1 East.

Your instructions for this investigation included, along with entirely complete data, a copy of the Honorable Commissioner's letter, "E" CGT, dated August 4, 1916, and also copy of the Commissioner's letter "E" CGT, dated October 10, 1916, addressed to you and requesting that this investigation develop information relative to the following items:

[fol. 1016] (1) The possibility of recovering and of restoring locally through T. 32 N., R. 1 W., the original State Boundary Survey as executed by E. N. Darling in 1868; this being the line upon which the subdivisional surveys were closed as of record.

(2) The existence or non-existence of the overlap reported by Mr. Gillett. In this connection it is recommended that an exhaustive search be made for authentic corners or other evidence of the original subdivisional surveys, both upon the Colorado and the New

Mexico sides of the line, as well as an examination of the evidence identified by the Mineral Inspector.

(3) If the existence of overlap is developed, its locus should be determined if possible.

(4) If the existence of overlap is established and the locus thereof is determinable, you will report the facts and submit recommendations for its elimination.

(5) If the existence of overlap is disproven, you will explain, if possible, the cause of the conflict between the claims of Archuleta and of Lohman, exhibiting by diagram the lands claimed and occupied by each, and further indicating upon said diagram the position of the lands to which they are entitled under their respective entries.

(6) You will interview the entrymen, Archuleta and Lohman, explaining the situation as revealed by your investigation, and will, if possible, effect an amicable adjustment of their controversy.

[fol. 1017] It is considered most practicable to make this report largely in the form of maps and plats showing conditions on the ground, as determined by actual retracements and verifications, accompanied by brief discussions on the above items 1 to 6, as called for by the Honorable Commissioner; also, to include valuable records of the former retracement of the E. N. Darling State Boundary Line made by Mr. Frank M. Johnson, Examiner of Surveys, in the years 1900 and 1901, also copies of retracements reported by Surveyor Blair Burwell from the sixth to the eighth Darling Astronomical Monuments, dated June, 1903, such maps and plats being as follows:

(a) Copies of the official G. L. O. plats of Fractional Townships 32 North, Ranges 1 and 4 West, and 1 East, both in the Colorado and New Mexico Surveys.

(b) Plats showing entries and patented lands in Tps. 32 North Ranges 1 E. and 1 West, both in Colorado and New Mexico, supplied from the official records.

(c) Plat showing the Darling and the Carpenter State Boundary positions and the related overlapping Colorado and New Mexico Township surveys in Tps. 32 North, Ranges 1 W. and 1 E.

(d) Plat showing the Darling and the Carpenter State Boundary positions and the related overlapping Colorado and New Mexico Township surveys in Tps. 32 North, Range 4 West.

In this examination care was taken to completely identify on the ground the official township surveys as executed on both sides of the state line, both in Colorado and New Mexico in the areas examined and herein reported, viz:

[fol. 1018] In Township 32 North, Ranges 1 and 4 West, and 1 East. It was found that these official township surveys are easily identified and well in evidence on the ground in both states, and in fact, that they appear to have been rather faithfully executed, except in the matter of erroneous closings on the old Darling State Line. These erroneous closings being no doubt largely due to the very erratic and poorly marked Darling line.

Plat "C" shows measurements of some of these township surveys as made in this investigation and also shows old corners which were completely identified. The original corner stones are in place as indicated at all of these corners, and the topography is faithfully recorded in the original field notes. Bearing trees are still existing at the closing corners of Sections 9 and 10, 11 and 12, and 12 and 7, Tp. 32 North, Range 1 West for New Mexico. Closing corners for Tp. 32 North, Range 4 West, Colorado, set by local surveyors were found in a few instances, notably the closing corner of Secs. 22 and 23, but in no instance were the original closing corners fully identified, and in fact, it is believed they were theoretical and were never set on the ground in Range 1 West and 1 East, however, a more ex-[fol. 1019] tensive search might develop some of these closing corners. However, as before stated, the subdivisional lines were faithfully executed except for the closing corners of Township 32 North, Ranges 1 West and 1 East, Colorado.

Careful meanders were made of topographic features along the Darling boundary location in the vicinity of the town of Edith, such as meanderings of the Navajo river and the limits of the Navajo valley, Cemetery hill, Spring creek, Beaver creek, and the intersections of official survey lines with Ewell canon, and these meanderings are shown accurately to scale on Plat "C." By comparing E. N. Darling's field notes with the natural features noted on this Plat "C" it will be noted that his line could not possibly have crossed the Navajo river and Cemetery ridge at any other point except very near the position noted on the plat.

The Carpenter State Line Survey is well monumented by iron posts, and is strongly in evidence on the ground. Its position is shown accurately to scale on Plat "C," also on Plat "D" in Range 4 West.

The E. N. Darling Boundary line is no longer much in evidence in any of the areas examined, the original corners having been destroyed. However, it is quite certain that the Darling line can be [fol. 1020] relocated on the ground very closely from the bearings he has given to natural objects and topographic features from his sixth to eighth astronomical monuments. The seventh astronomical monument can thus be located positively one hundred and ninety links East of the foot of Cemetery hill, shown on Plat "C," the topography given by Darling from his 213th to 217th Mile Corners fixes position of his line within very narrow limits, and corroborates the Seventh Astronomical Monument location at the east base of Cemetery hill.

The Darling 217th Mile Corner may be relocated very closely from topography on top of Meyer's ridge, directly west of the Seventh

Astronomical Monument. This 217th Mile Corner has been d
stroyed, but some old stakes, one about twenty feet long, are lyi
loose in the vicinity of the true position for this old corner, whic
is in a locality never yet visited by the lumberman. These old stak
were presumably set up at the old 217th Mile location, either by E
aminer Johnson or Surveyor Burwell in retracing the Darling lin
Faint choppings, about fifteen years old, can be traced west fro
these old stakes.

Darling's reported crossing of Ewell canon in Range 1 East and
West, is almost directly east from his Seventh Astronomical positio
at the base of Cemetery hill, and the direction of Ewell canon, a
[fol. 1021] shown on Plat "C" would seem to preclude the possibili
of his having crossed this canon, in an official way, anywhere excep
in the vicinity of the closing corner of the New Mexico Principa
Meridian, as noted in the New Mexico township surveys.

In this connection I wish to make a special mention and to mak
a part of this report, a report of the "Examination of the Colorado
New Mexico Boundary Line, by Frank M. Johnson, Examiner o
Surveys," in the years 1900 and 1901, and his letter of explanation a
the Commissioner of the General Land Office, dated September 12
1901. This extensive examination and report by Mr. Johnson, hav
ing been made fifteen years ago, while the old Darling survey wa
much more in evidence than at present, will be of great value in an
attempt to relocate the Darling line between astronomical monument
Nos. 6 and 8. Evidences of the line chopped out by Mr. Johnson i
his retracement of the old Darling position were found in Range
West, and Range 4 West, it is believed, and the numerous topo
graphic notations made by Mr. Johnson will serve to fix and to per
petuate the true Darling position. It will be noted that on his r
tracement westward from the Darling Astronomical Monument
Number 6, Mr. Johnson found positive evidence of the Darling lin
up to the 206 Mile Corner, that from this position westward to th
[fol. 1022] west side of the Navajo valley, very little authentic ev
dence of the Darling line was found. The small granite stone marke
STA NO 7, which Mr. Johnson discovered just west of the valley o
the Navajo river is still in place, and the topography noted by Mr
Johnson just before he reached this stone, Spring creek, the wago
road, the D. & R. G. Railway track, and the Navajo river, were re
traced in this examination and check up with the distances given by
Mr. Johnson. This stone is 30.23 chains south and 24.65 chains
west of the true position for the Darling Astronomical Monument
No. 7, at the east base of Cemetery hill, as shown in their true rela
tive positions on Plat "C."

A careful search was made for the Darling 206th Mile Corner
reported by Mr. Johnson, but conclusive evidence of its position
could not be made in this examination without extensive retracements
from more distant eastern locations, or perhaps from the Sixth Astro
nomical Monument. However, the true position for this 206th Mile
Corner can, no doubt, be relocated by measuring from definite loca
tions on the Darling line further east or from the Sixth Astronomical
Monument, and its location being thus fixed within narrow limits

the original bearing trees or stumps for this 206th Mile Corner, which Mr Johnson found in existence fifteen years ago, should permanently fix this Darling corner.

I was unable to find any evidences of the Blair Burwell relocation [fol. 1023] along the Darling line, except in the town of Edith or vicinity, he having set two sandstones, one at the east base of Cemetery hill, and the other 190 links east of Spring creek, just at the foot of the hill entering the Navajo valley or mesa, these locations and stones set by Burwell, are noted on Plat "C," and appear to be very nearly on the true Darling line, and also incidentally on the line of the New Mexico township closings.

Considering more specially Town. hip 32 North, Range 4 West, I found that the New Mexico subdivisions closed definitely on the Carpenter Boundary line, which is well monumented by iron posts, and that the Colorado subdivisions do overlap the New Mexico subdivisions to a point about 11.75 chains, which of course, would be a line about 11.75 chains south of the Carpenter Boundary position. The New Mexico closing corners in this range are in position, being a late survey, but no closing corners were found for the Colorado subdivisions in this brief examination, however, the Colorado subdivisions were retraced sufficiently to absolutely certainly establish the fact that they are well in evidence and faithfully executed, except for the fact that they appear to have crossed over and beyond the true Darling Boundary line about 3.75 chains. I measured south [fol. 1024] from the well identified corner of Sections 14, 15, 22 and 23, Tp. 32 N., R. 4 W., Colorado, the distance called for by the field notes as follows: At 19.60 chains, new public highway, runs east and west; at 20.13 chains, a sandstone for Indian allotment corner; at 29.00 chains, irrigation ditch, 10 lks. wide, course west; at 30.45 chains, center of D. & R. G. Railway track, course E. and W.; at 40.18 chains, temporary 1/4 sec. cor., a flag recently set by local surveyors; at 40.37 chains, a stake, marked 1/4 on N., set by local surveyors in the year 1911; 47.29 chs., wire fence, perfectly straight east and west, on the Carpenter Boundary survey, said fence having been constructed by Roque Gallegos, as the North boundary of his patented claim now in conflict and litigation with Indian allotment, James Baker, No. 72, now owned by Mr. W. T. Carr, of Pagosa Junction, Colo. Mr. Gallegos' claim is covered by entry 012188, New Mexico, and patent No. 29,505, dated September 9, 1912. Continuing my measurement south between Secs. 22 and 23, as above noted, from the cor. of Secs. 14, 15, 22 and 23, at 59.00 chs., the call of the original field notes, a pine stake marked 4 grooves on the west and 2 on east, recently set by local engineer for contestants in law; at 59.62 chs. an old stone in a mound of stone set by Surveyor Wingleworth for Indian allotments many years ago, 61.50 chs., edge of water, north bank of San Juan, course W. N. W.

[fol. 1025] Other subdivisional corners in Tp. 32 North, Range 4 West were visited and identified. The true relative positions of the Carpenter Boundary line, the Darling Boundary line position

and the township subdivisions, closing and overlapping in the townships from both sides is shown in Plat "D".

It would therefore appear that the Colorado subdivisions in Range 4 West extended about 3.70 chains south of the true Darling Boundary, inasmuch as they are about 11.70 chains south of the Carpenter position. This conclusion is reached theoretically. The Darling corner No. 243 was reported by Carpenter to be 8.00 chains south of his line. Examiner Johnson reports evidence of the 235 Mile Corner, and his notations of river crossings in Range 4 West indicate that he was about 8.00 chains of the Carpenter line, as indeed do also old choppings across this range in the San Juan river bottom which, residents in this vicinity attribute to Mr. Johnson's retracement, however, this position could be determined more definitely by complete retracements eastward from the Darling Seventh Astronomical Monument.

The following conclusions, therefore, may be drawn and stated in the order of items 1 to 6, as called for by the Commissioner's letter "E" CGT:

(1st) It would seem entirely possible and practicable to restore [fol. 1026] the E. N. Darling Boundary line through Range 1 West by projecting the line practically due east and west through the restored Seventh Astronomical position. West through the 217 Mile Corner and east to the New Mexico Principal Meridian at Ewell cañon. Such a reestablished line will follow very closely the New Mexico closing corners, three of which are in place and witnessed by bearing trees. This line would also be supported by the Blair Burwell reestablishments across the Navajo Valley.

The reestablishment of the Darling line through range 1 East New Mexico, will probably be somewhat theoretical. About the strongest position seems to be to extend this line across the range from the New Mexico Principal Meridian, at the Ewell cañon, crossing in a straight line about south 86° 20' East to the Darling corner No. 206, formerly identified by Examiner Frank M. Johnson.

The reestablishment of the Darling line through Range 4 West may be made very closely it is believed, by extending the line East from his 243 Mile Corner or his Eighth Astronomical Monument and his 235 Mile Corner, formerly identified by Examiner Johnson supported by the topography in range 4 West.

(2) The existence of overlaps is absolutely certain. In range 1 West, it is about 20.00 chains. In range 1 East the overlap is about 17.00 chains. In range 4 West the overlap is about 11.70 chains. See Plats "C" and "E".

[fol. 1027] (3) As to the locus or extent of these overlaps and theoretical closings, it seems certain that they exist all along the State Boundary line from the Sixth to the Eighth Darling Astronomical Monuments wherever closings have been attempted. It was noted in this examination that the Tierra Amarilla Grant owners have put in a substantial wire fence exactly on the Carpenter Boundary line. It will be noted that the Colorado subdivisional closings in

Range 1 East extend about 17.00 chains south of the Carpenter survey, and hence will be in conflict with the Grant holdings, as now fenced by them.

(4) The question of the elimination of these overlaps and conflicts as above established, and the adjustment of homestead and patent rights will be rather a difficult task, and yet if is one which will grow worse if delayed. Plats "B" show entries made and patent required from the subdivisional surveys in Township 32 North, Ranges 1 West and 1 East, both in Colorado and New Mexico, and by considering the areas of overlap shown on Plat "C", the extent of conflicts may be noted.

In range 4 West conditions are rather still worse. Indian allotments No. 87, Bob Richards, No. 88, Andy Cameron, No. 90, Ella Frost, No. 129, Isaac Eagle, No. 130, Amos Spring and No. 7 James Baker, in T. 32 N., R. 4 W. and T. 32 N., R. 5 W. have been [fol. 1028] made and patents granted in fee simple to these Indians, it appears from information furnished by Superintendent Walter G. West, of the Southern Ute Indian Reservation, all based upon the Colorado closings. From the New Mexico side patents have been granted to Roque Gallegos, Patent No. 290605; to Demetrio Madrid, Patent No. 32341; to Dario Sandoval, Patent No. 415829, these patents extending through sections 8, 9 and 10, and closing on the Carpenter line, and are in conflict with the aforenamed Indian allottments. Litigation is now in progress or has been previous to this investigation. By interviews with the contestants, I find that there is a disposition to stay proceedings until the Department of the Interior can take some action, or suggest some solution. The land under conflict in this range is valuable river bottom, and mostly under cultivation and irrigation.

In the first place it certainly is the duty of the Government to protect as far as possibe all valid patent and homestead rights acquired by settlers in good faith by the subdivisional lines in both states, regardless of any arbitrary state lines which may be adopted or revived, and it has been suggested that the granting of lieu selections might achieve this object.

But in order to avoid a continuation of these conflicting conditions, the following suggestions have been considered: That the first [fols. 1029 & 1030] and second tiers of sections closing on both sides of the State Boundary be withdrawn from entry, until a legal State Boundary line can be adopted and the township plats corrected to close on such a boundary. Also that all valid homestead and patent rights be adjusted by Metes and Bounds surveys in an equitable way or otherwise by lieu selections.

Very respectfully submitted, Alonzo E. Compton, Assistant Supervisor of Surveys. AEC/S.

[fol. 1031] PLAINTIFF'S EXHIBIT No. 10

1,025,565. "E." JAD.

4-207

Department of the Interior, C. T. D. B.
General Land Office,
Washington, February 8, 1922.

I hereby certify that the annexed photographic copy of the diagram showing overlap and conflicts along the Colorado and New Mexico State line in T. 32 N., R. 4 W., N. M. P. M., as developed by investigations made November, 1916, by A. E. Compton, Assistant Supervisor and F. M. Johnson, Supervisor, is a true and literal exemplification of the official diagram on file in this office.

In testimony whereof I have hereunto subscribed my name and caused the seal of this office to be affixed, at the city of Washington, on the day and year above written.

Geo. S. Wickersham, Assistant Commissioner of the General Land Office. (Seal of United States General Land Office.)

(Here follows diagram, marked side folio page 1032.)

[fol. 1033] PLAINTIFF'S EXHIBIT No. 11

4-679

Field Notes of the Survey of the Resurvey and Restorati of that Portion of the Original Boundary Line Between Colorado and New Mexico, Embraced Between the 203rd M. Cor. and the 7th Astronomical Monument, as Surveyed by Ehud N. Darling, Surveyor and Astronomer, in the Year 1868

(Approved by Commissioner G. L. O. by His Letter "E," Dated July 6, 1918)

Executed by Wm. C. Perkins, U. S. Surveyor, under authority of Clay Tallman, Commissioner of the General Land Office, by his letter "650,446 'E,' C. G. T.," dated May 23, 1917, addressed to Supervisor of Surveys, Frank M. Johnson, in the capacity of U. S. Surveyor, under instructions dated April 27, 1917, issued by the United States Surveyor General to govern surveys included in Group No. 79, which were approved by the Commissioner of the General Land Office ——— ——, ———, 191–, Assignment Instructions dated July 17, 1917, issued by the Assistant Supervisor of Surveys for New Mexico.

Survey commenced Sept. 2, 1917.

Survey completed Nov. 13, 1917.

N. P. N. N. N.

(Here follows index diagram, marked side folio page 1033½.)

Plaintiff's
Exhibit No. 8

Diagram of
Frac. T. 32 N. R. 7 E.
to accompany
Cont. No. dated
with

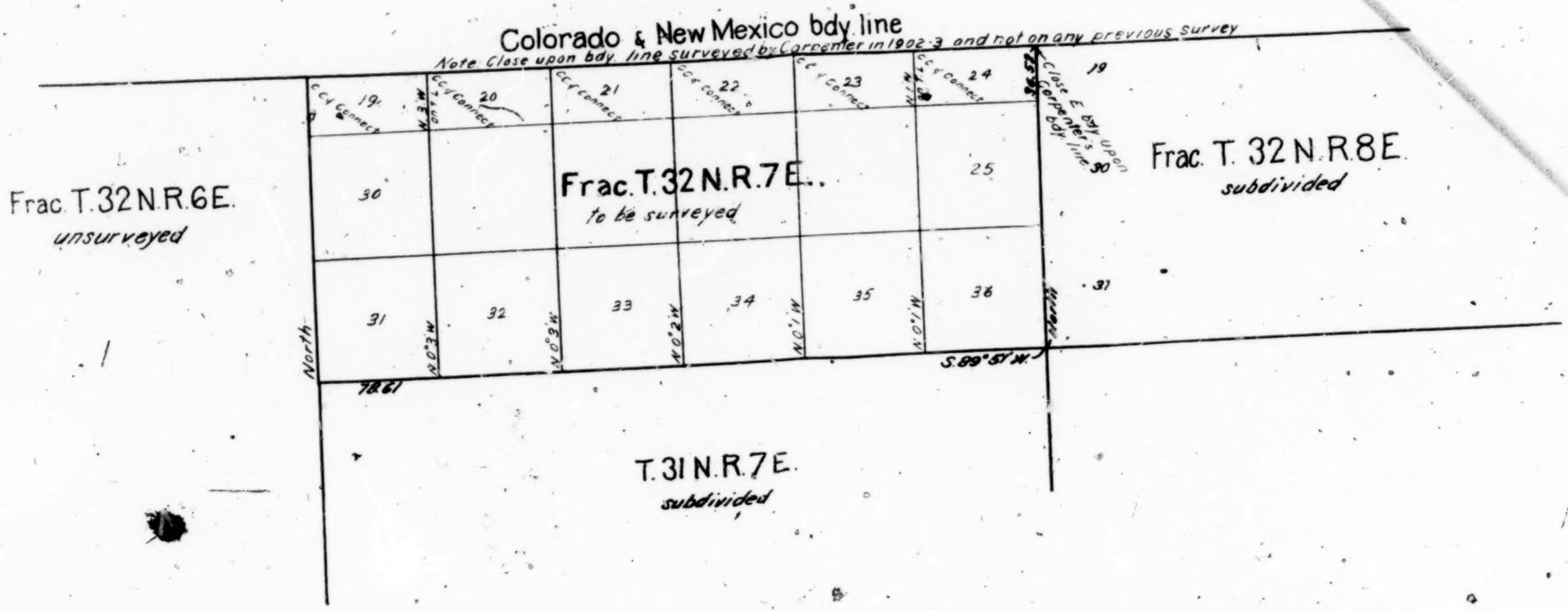


Diagram of
Frac. T. 32 N. R. 7 E.
to accompany
Cont. N° dated 07
with

Scale 80 Chs = 1 inch
Note Black lines already run
Red lines to be run

previous survey

Frac. T. 32 N. R. 8 E.
subdivided.

22.

the
New
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and
gton,

neral
fice.)

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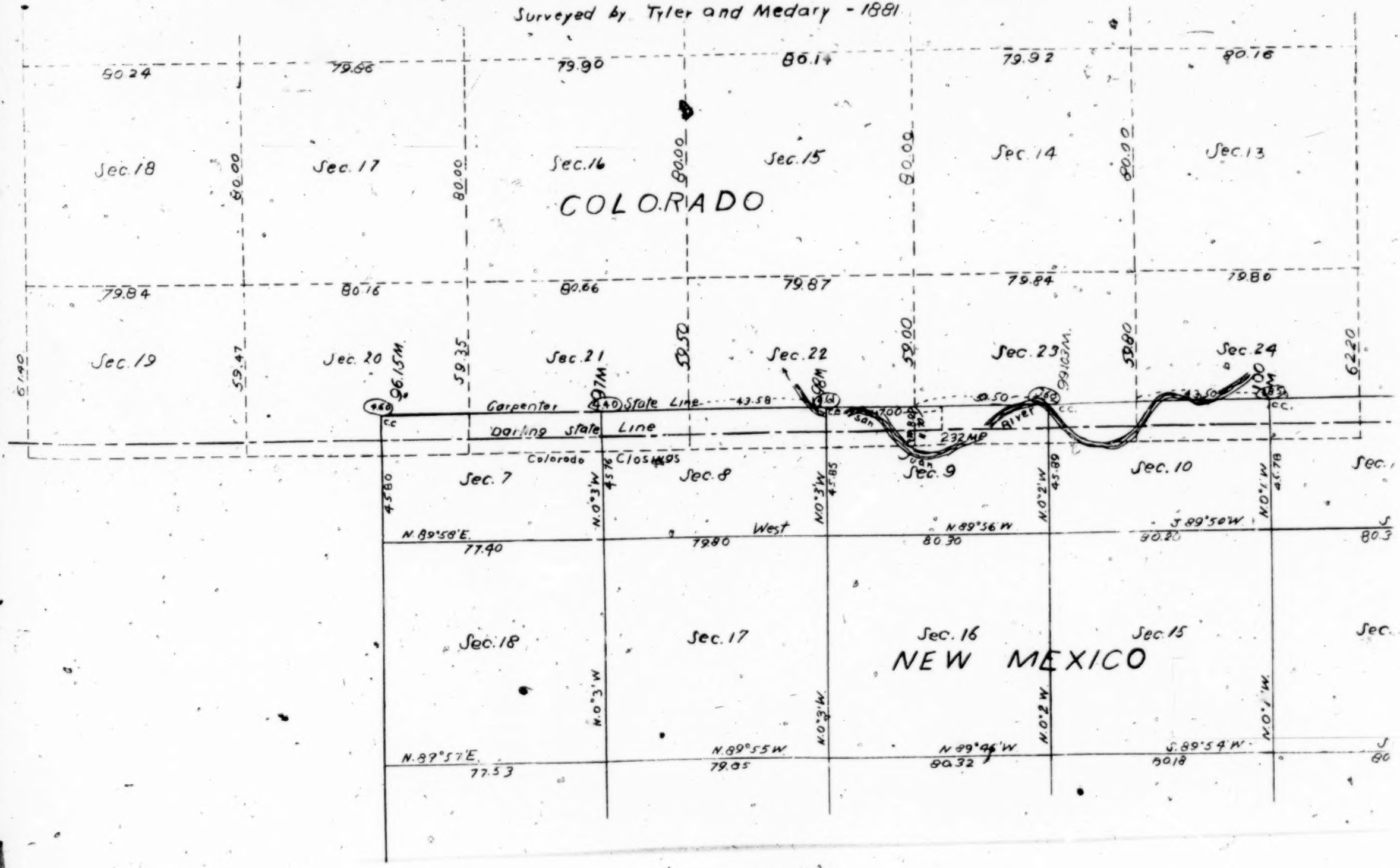
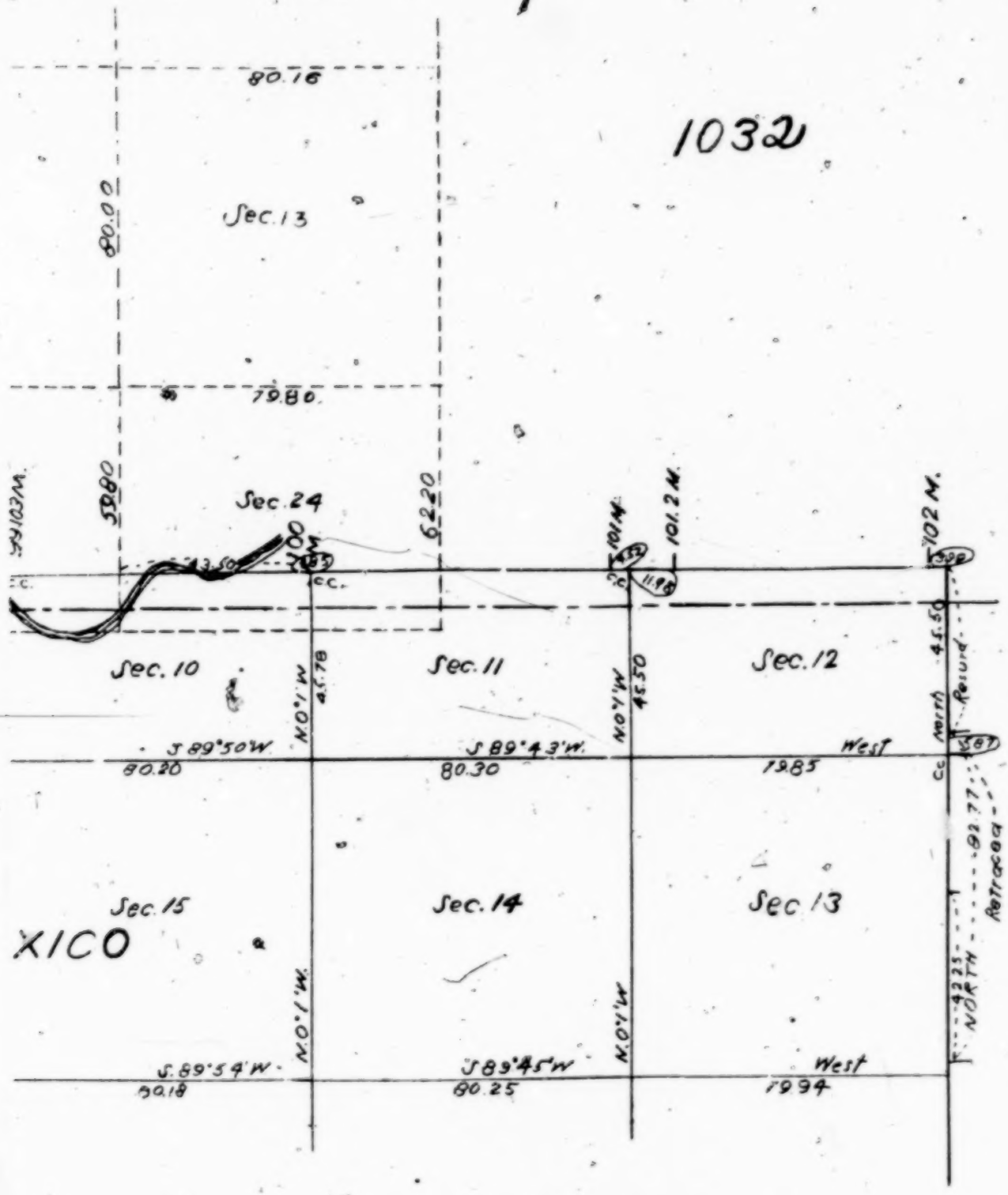
TOWNSHIP N°32 NORTH RANGE N°4 WEST OF THE NEW MEXICO PRINCIPAL MERIDIAN

Surveyed by Tyler and Medary - 1881



MERIDIAN

1032



ST OF THE NEW MEXICO PRINCIPAL MERIDIAN.

1033½

INDEX DIAGRAM.

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[fol. 1034] In the execution of this survey the following references were at hand:

Chains

1. Copy of the Notes of the Original Survey made by Ehud N. Darling, in the year 1868.

2. Copy of the Report of Examination of the E. N. Darling Survey, made by Frank M. Johnson, Examiner of Surveys, in the year 1901.

3. Copy of the Report of Charles A. Johnson, Commissioner, who made a resurvey for the State of Colorado of this portion of the Darling Survey, in the years 1901 and 1902.

4. Copy of the Report of Examination made by Alonzo E. Compton, Assistant Supervisor of Surveys for New Mexico, in the year 1916.

These references were frequently consulted in order that no evidence of the original survey might be overlooked, and that all evidence might be fully considered.

Retracement of the Boundary Line Between Colorado and New Mexico from the 203rd to the 299th M. Cor.

I begin at the 206th mile cor., described in the following notes.

Thence East, retracing the 206th mile.

80.00 Find no evidence of the 205th mile cor.
Set temp. stake.

East, retracing the 205th mile.

80.00 Find no evidence of the 204th mile corner.
Set temp. stake.

East, retracing the 204th mile.

79.17 Fail 8 lks. N. of the point for the 203rd mile corner, described in the following notes.

I now return to the 206th mile corner. From a temp.
[fol. 1034a] stake which is 11 lks. S. and 3 lks. E. of the point for the 206th mile corner,

Thence, West retracing the 207th mile.

80.00 Find no evidence of the 207th mile cor.
Set temp. stake.

West, retracing the 208th mile.

80.00 Find no evidence of the 208th mile corner.
Set temp. stake.

West, retracing the 209th mile.

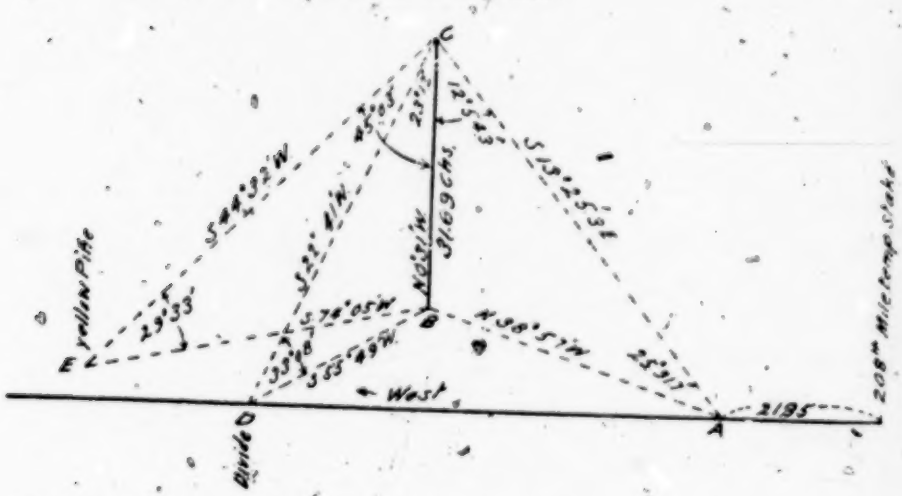
21.95 Establish a tall flag in dense oak brush, on steep N. slope of mesa. Then set a flag at S. end of Base Line in a large open area. This flag bears N. 38° 57′ W.

I now proceed to the S. end of the base line and run N. 0° 31′ W. 31.69 chs. on Base line, from which point the flag established on line at 21.95 chs. bears S. 13° 25.3′ E.

From the north end of the base line, a large yellow pine, standing at the edge of a high mesa, and only a few links north of line, bears S. 41° 32.0′ W.; and a flag on line on a low divide east of the mesa bears S. 22° 41′ W.

From the south end of the base line, the large yellow pine bears S. 74° 05′ W.; and the flag on line on the divide bears S. 55° 49′ W.

The north end of this base line is 9 lks. W. of a wire fence that has been built for the W. boundary of the Tierra Amarilla Grant. The South end of the base line is 3 lks. W. of the same wire fence.



[fol. 1035] Retracement of the Boundary Line Between Colorado and New Mexico from the 209th to 210th Mile Cor.

Solution of Triangle ABC

Chains

Log. 31.69	=	1.500922	
" sin. 12° 54.3′	=	9.348957	(plus)
	=	10.849879	
" sin. 25° 31.7′	=	9.634434	(—)
" of side AB	=	1.215445	Side AB = 16.423 chs.
" sin. 38° 57′	=	9.798403	(plus)
" of Departure AB	=	1.014033	

Chains

Departure of AB =

10.33 chs.

Distance to flag at A = 21.95 chs. from 208th mile cor.

Distance on line to point opposite B = 32.28 chs. from 208th mile cor.

Solution of Triangle BCD

Log 31.69 = 1.500922
" sin. 23° 12′ = 9.595432 (plus)

11.096354
" sin. 33° 08′ = 9.737661 (—)

" of side BD = 1.358693 Side BD = 22.84 chs.
" sin. 55° 49′ = 9.917548 (plus)

" of departure BD = 1.276241

Departure of BD

Distance on line to point opposite B 18.89 chs.
32.28 chs. from 208th M. Cor.

Distance on line to D 51.17 chs. from 208th M. Cor.

51.17 Low divide, bears N. 60° W. and S. 60° E.

Solution of Triangle BCE.

Log. of 31.69 = 1.500922
" sin. 45° 03′ = 9.849864 (plus)

11.350786
" sin. 29° 33′ = 9.693008 (—)

" of side BE = 1.657778 Side BE = 45.48 chs.
" sin. 74° 05′ = 9.983022 (plus)

" of departure BE = 1.640800

Departure of BE = 43.73 chs.
Distance on line to point oposite B = 32.28 chs. from 208th M. Cor.
Distance on line to point opposite tree = 76.01 chs. from 208th M. Cor.

Side AB N. 38° 57′ W. = 16.423 chs. Lat = 12.77 chs. N.
Side BE S. 74° 05′ W. = 45.48 chs. Lat = 12.47 chs. S.

Latitude of point E. 0.30 chs. N.

Colorado & New Mex. Boundary Line

Note Close upon Colo. "dy line established by Carpenter in 1903

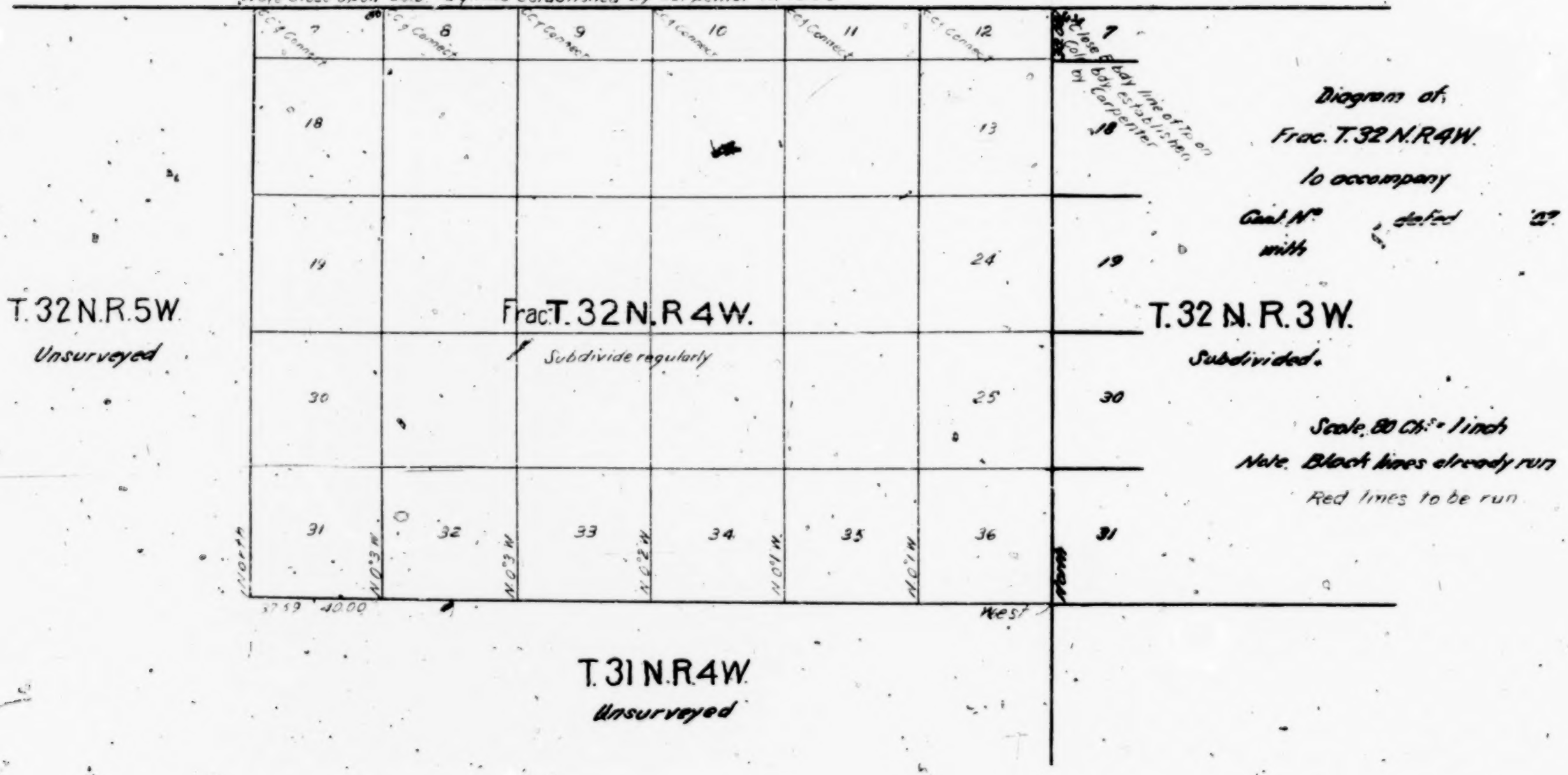


Diagram of Frac. T. 32 N. R 4 W. to accompany Coal No. dated 27 with

Scale. 80 Chs. = 1 inch

Note. Black lines already run

Red lines to be run

V

TOWNSHIP N° 32 NORTH RANGE N° 4 WEST OF THE NEW MEXICO PRINCIPAL MERIDIAN.

DIAGRAM
showing
Overlap and conflicts along the
Colorado & New Mexico State Line
in T. 32 N R 4 W. N. M. P. M.
as developed by investigations
made Nov. 1916 by A. E. Compton
Asst. Supervisor and F. M. Johnson Supervisor

Chains

I now proceed to top of finest, and at 30" yellow pine
76.01 bears N. 30 lks. I check this position of the line by back sighting at my flag and at other backsights. Thence I proceed by chaining.
80.00 Find no evidence of the 209th mile cor.
Set. temp. stake.

[fol. 1035a] Retracement of the Boundary Line Between Colorado and New Mexico from the 210th Mile Cor.

West, retracing the 210th mile.
4.76 At this point I clear an opening in an Aspen thicket and established a tall flag for a back sight.

To the west are two deep canyons, and a high sandstone ridge, over which it would be extremely difficult to chain. I therefore set a flag on line on a high ridge beyond the canyons. I proceed to this point and lay off a base line S. 22° 30.6' W. 12.91 chs. This is the longest base obtainable. I clear the base of oak brush and chain it very carefully. As the base line is on a nearly level ridge, and as each end is visible from the other end, I consider that this triangulation will be much more accurate than to have chained the line. I measure all angles with extreme care. Because of the short base line, I triangulate back to the flag at 4.76 chs. and to the 30 in. yellow pine tree noted at 76.01 chs. on the 209th mile.

From the north end of the base line, which is on line the 30 in. yellow pine tree bears N. 89° 42.5' E.; and the flag established at 4.76 chs. bears East. As there is a deep canyon just west of the base line, I set a flag on line beyond the canyon. This flag bears West.

From the south end of the base line, the 30 inch yellow pine tree bears N. 89° 10.2' E.; the flag at 4.76 chs. bears N. 79° 03.3' E. and the flag across the canyon to the west bears N. 62° 29.2' W.

[L. 1036] Retracement of the Boundary Line Between Colorado and New Mexico from the 210th to 212 Mile Cor.

Solution of Triangle ABD

Log. of 12.91	= 1.110926	
" sin. 57° 39.6'	= 9.926739	(plus)
	11.037725	
" sin. 9° 32.8'	= 9.219341	(—)
	= 1.818384	Side AD = 65.82 chs.
		3.99 (—)
Distance from 209th mile cor. to N. end. Base		= 61.83 chs.

Solution of Triangle ABC

Log. of 12.91	= 1.110926	
" sin. 56° 35.7'	= 9.924581	(plus)
	11.035507	
" sin. 10° 53.7'	= 9.276484	(—)
" of side AC	= 1.759023	Side AC = 57.02 chs.
		4.76 plus
Distance from 209th mile cor. to N. end Base		= 61.78 chs.
Distance computed from triangle ABD		= 61.83 chs.
the average of which is		as
61.80 Stake at N. end of base line, on ridge, which bears N. 20° E. and 8. 25 W.		

Solution of Triangle ABE

Log. of 12.91	= 1.110926	
" sin. 84° 59.8'	= 9.998342	(plus)
	11.109268	
" sin. 27° 30.8'	= 9.664599	(—)
" of side AE	= 1.444669	Side AE = 27.84 chs.
Distance from 209th mile cor. to N. end Base		= 61.80 chs.
Distance from 209th mile cor. to point E.		= 89.64 chs.

Therefore at

80.00 Point for 210th mile corner falls in canyon and was never set by Darling.

West, Retracing 211th Mile

9.64 Flag on west side of canyon. Thence by chaining

80.00 Find no evidence of the 211th mile cor.
Set temp. stake.

West, Retracing the 212th Mile

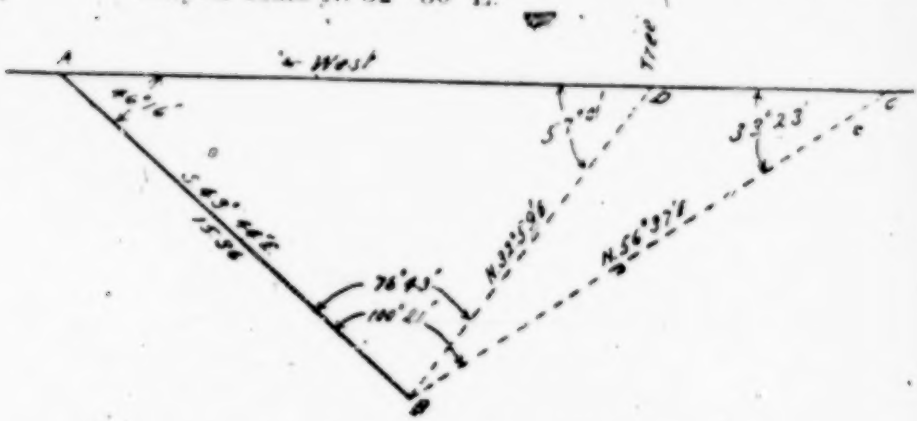
Chains

36.43 Set flag near top of right bluff overlooking Ewell Canyon. Up to this point there has been a very close agreement between the topography recorded in the original survey of this line, and the topography noted in this retracement.

From this point west to Astronomical Station No. 7, described in the following notes, there is no agreement whatever between the topography recorded in the original survey, and the topography noted in this retracement.

[fol. 1037] Retracement of the Boundary Line Between Colorado and New Mexico from the 212 Mile Cor. and West to Astronomical Mon. Sta. No. 7

There is no convenient place for a base line on the right bluff of Ewell Canyon. I therefore set a flag on line on left bluff of Ewell Canyon, and proceed to that point. Before laying off the base line, I set a flag on line near the bottom of Ewell Canyon, which is attached to a fir tree, 12 ins. in dia. From the flag on line on the left bluff of Ewell Canyon I lay off the base line, S. 43° 44' E. 15.36 chs., from which the flag on the right bluff bears N. 56° 37' E., and the flag attached to the fir tree in the canyon bears N. 32° 59' E.



Solution of Triangle ABC

Log. of 15.36	=	1.186391	
" sin. 100° 21'	=	9.992875	(plus) .
		11.179266	
" sin. 33° 23'	=	9.740550	(—)
" of side AC	=	1.438716	Side AC = 27.46 chs
Distance from 211 mile cor. to point C			= 36.43 chs.
Distance from 211 mile cor. to point A			= 63.89 chs.

Solution of Triangle ABD

Chains

Log of 15.36 = 1.186391
" sin. 76° 43′ = 9.988223 (plus)

11.174614
" sin. 37° 01′ = 9.923673 (—)

" of side AD = 1.250941 Side AD = 17.82 chs.

Distance from 211 mile cor. to point A = 63.89 chs.
Distance from point A back to point D = 17.82 chs.

Distance from 211 mile cor. to point D = 46.07 chs.

Therefore at

46.07 Fir tree, 12 ins. in dia. near bottom of Ewell Canyon.
From this tree I chain down to bottom of canyon.

[fol. 1038] Retracement of the Boundary Line Between Colorado and New Mexico from Astronomical Mon. No. 7, East to 214 Mile Cor.

59.24 Stream, 5 lks. wide, clear water, in bottom of Ewell Canyon, course N. 40° W.
From this point I return to
63.89 Flag on left bluff of Ewell Canyon Thence by chaining:
90.00 Set temp. 212 mile stake.
From the 212-mile stake
Thence West a distance of 2 miles 47.58 chs. and fall 76 lks. South of Astronomical Station No. 7, described in the following notes.
The topography noted on this retracement since leaving the 211 mile corner, does not agree in any respect with the topography recorded in the notes of the original survey.
From Astronomical Station No. 7.
Thence N. 35° 30′ E., 43.06 chs. and set a stake in the edge of a plowed field about 3.50 chs. East of east foot of cemetery ridge.
From this stake
Then N. 2° 48′ W. 6.82 chs. and intersect a stone monument described in the following notes, known as the Burwell Monument, on the east slope of Cemetery Hill.
From this stone Monument.
Thence East 259 lks. to a point 150 lks. East of foot of slope as given in Darling's notes, which is the true point for Astronomical Monument No. 7, described in the following notes. At which point I set a temp. stake.

Chains

From temp. stake at point for Astronomical Monument No. 7.

East retracing 215th mile.

25.30 Find no evidence of the 214th mile cor.
The topography agrees closely with the topography recorded in the notes of the original survey.
Set temp. stake.

[fol. 1039] Retracement of the Boundary Line Between Colorado and New Mexico from Astronomical Mon. No. 7, East to 215th Mile Cor.

East retracing 214th mile.

80.00 Find no evidence of the 213th mile cor. The topography agrees closely with the topography recorded in the notes of the original survey.
Set temp. stake.

East retracing 213th mile.

80.00 Find no evidence of the 212th mile cor.
Set temp. stake.
This point falls in Ewell Canyon, about 3 chs. up on the right slope of the canyon, and about 10 chs. W. on the line from top of right bluff of canyon.

As the topography on the retracement East from Astronomical Monument No. 7 agrees closely with the topography reported in the notes of the original survey for this part of the line, while the topography on the retracement running West from the temp. 211 mile cor. as far as Astronomical Station No. 7, does not agree with the notes of the original survey, I conclude that from Astronomical Monument No. 7 the original survey was run East as far as Ewell Canyon.

I now return to temp. stake as Astronomical Monument No. 7. Thence West retracing the 215th mile.
The topography agrees closely with the topography recorded in the notes of the original survey.

9.70 At this point, which is on top of Cemetery Hill, the notes of the original survey show that a base line was run in a northerly direction, the exact bearing not being given. From this base line triangulation was made to the top of Archuleta Mountain known in the original notes as Myers Ridge. I, therefore, run North, retracing this base line, and at 60 chs. find that a flag on the line, on top of the

mountain to the west would not be visible, as it would be behind a high, rocky promontory. This 60 ch. point falls
[fol 1040] on steep N. W. slope 8 ft. lower than top, from which the S. end of the base line, on Cemetery Hill is not visible.

Retracement of the Boundary Line Between Colorado and New Mexico from the 215th to 218th M. Cor.

Chains

Continue the retracement of the base line, and at 70 chs. fall on a steep W. slope about 30 ft. above a small valley. From this point the S. end of the base line on Cemetery Hill is not visible, and a flag on line on top of the mountain to the west would be hid behind the rocky promontory above mentioned.

I now return to the S. end of this base line and continue West on the retracement of the 215th mile.

54.70 Find no evidence of the 215th mile cor.
Set temp. stake.

West retracing the 216th mile.

80.00 Set temp. stake at 216th mile cor.

West, retracing the 217th mile.

80.00 This point falls 1.30 chs. East of the top of Archuleta Mountain, instead of 6 chs. West of the top, as reported in the notes of the original survey.

87.30 Set temp. stake for 217th mile cor., at a point 6 chs. West of the edge of bluff. Find no evidence of the original corner.

NOTE.—Owing to a discrepancy of over a mile in measurement between the original survey and this retracement in the distance from the 217th mile cor. to the Navajo River, I call all miles on this retracement west of the 217th mile cor. temp. miles.

Thence West, retracing the 218th temp. mile.

11.30 The notes of the original survey state that at this point there is a "high perpendicular cliff." I find only a gently rolling West slope, covered with heavy timber. There is no "high perpendicular cliff" on the west slope of this mountain within two miles.

After diligent search through the timber over the top
[fol 1041] of Archuleta Mountain find no blazes nor any other evidences of the line.

The notes of the original survey state that at this point a base line was run N. 10° E. to within 30 lks. of the N. end of the mountain, and S. 10° W. to within 30 lks. of the S. end of the mountain, and that triangulation was made to "a lone pine tree, standing near the West end of

a high mountain ridge, and cannot be mistaken for any other. The above named tree is five minutes North of line. This base line could not have been run S. 10° W. without running off on the west slope of the mountain. From the 14.30 ch. point no view to the west could have been obtained without first clearing an opening through the heavy timber. There are no old stumps, nor any signs of a cleared line in this vicinity.

Base Line on Archuleta Mountain.

To further verify the record contained in the original notes I go to the south end of Archuleta Mountain, which terminates in a high, sharp, barren point with nearly perpendicular walls on the E. S. and W. sides. At a point 50 lks. N. of the extreme S. end of the mountain is an old triangulation tower from which point:

Thence 1. N. 10° E. 51.90 chs. to a point on E. slope of mountain.

2. N. 10° W. 38.00 chs.

3. N. 10° E. 3.14 chs. to a point that is 5.45 chs. west of the temp. 217th mile stake.

To have followed the call of the original notes this line should have run N. 10° E. 90.00 chs. to a point 14.30 chs. W. of the 217th mile cor.

I now go to the north end of Archuleta Mountain, which I find to be a high, precipitous wall, extending more than a mile east and west, with a number of high sharp points. Only from the extreme northwest point of the mountain can a view to the west be obtained. The south end of the mountain is not visible from any point at the north end.

[fol. 1042] On the northwest point of the mountain, 20 lks. S. of the extreme N. edge, I trim up a fir tree, 3 ins. in dia. and attach a flag at the top, for a backsight. There is no evidence of any triangulation point ever having been here. From this flag, thence

Retracement of the Boundary Line Between Colorado and New Mexico from the 218th to 225th M. Cor.

1. East, 11.70 chs. along top of small ridge.

2. S. 50° 00′ E. 92.00 chs. across rolling top of mountain to a point about 6 chs. from E. edge of top.

3. S. 17° 00′ W. 69.00 chs. across rolling top of mountain.

4. S. 38° 30′ E. 6.86 chs. across rolling top of mountain.

Chains

S. 8° 00′ W. 13.87 chs. to a point that is 5.45 chs. west of the temp. 217th mile stake.

To have followed the call of the original notes, the base line from the north end of the mountain should have run S. 10° 00′ W., 147.50 chs. to a point, 14.30 chs. W. of the 217th mile corner.

Having failed to find any evidence of the 217th mile corner, or any evidence of the original line on top of Arshuleta Mountain, I conclude that the 217th mile cor. should be established at a point 6 chs. west of the east edge of the mountain top, as described in the original notes, and as reported found by Frank M. Johnson, Examiner of Surveys, in his examination of this line in the year 1901.

I now return to the 14.30 ch. point on the 218th mile and continue West on the retracement.

31.75 At this point I clear an opening in the aspen thicket and erect a tall signal flag to be used as a backsight. This is the first point on line I have found from which a view to the west could be obtained. Numerous ridges and canyons can be seen to the west, but there are no notable objects on line. I fail to find "a lone pine tree, standing near W. end of high mountain ridge," that "cannot be mistaken for any [fol. 1043] other," as reported in the notes of the original survey.

80.00 Set stake for temp. 218th mile point.

West on temp. 219th mile.

80.00 Set stake for temp. 219th mile point.

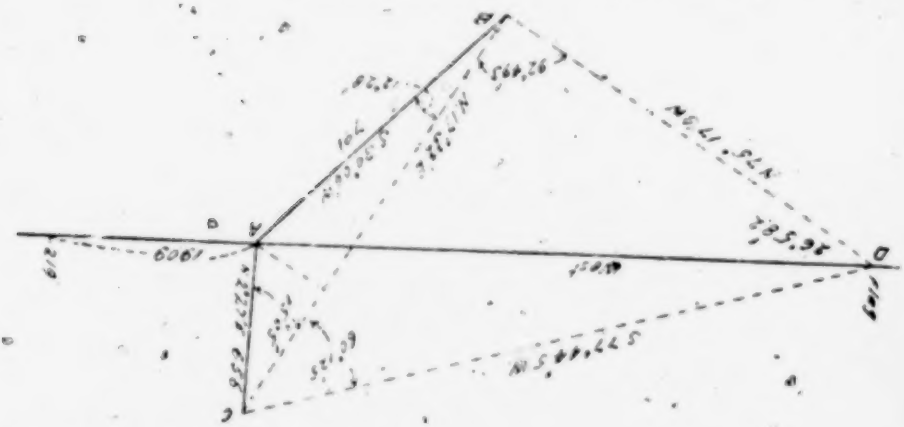
West on temp. 220th mile.

19.09 A wall of rimrock 300 ft. high bearing nearly N. and S., crosses to the line 1 ch. west of this point. Beyond the rimrock is a steep slope of debris and a canyon heavily timbered. I therefore set a flag on line on the first ridge to the west.

The edge of the rimrock is undulating, and is fringed with bushy trees, making it impossible to measure a base line along the edge. Therefore, from the stake at 19.09 chs., thence

S. 30° W. 7.91 chs. to a prominent point on the edge of the rimrock and set a stake for the S. end of the base line. Returning to the stake at 19.09 chs. on the random, Thence N. 2° 27′ E. 6.56 chs. to a prominent point on the edge of the rimrock and set a stake for the N. end of the base line. The stake at the S. end of the base line is visible from this point. It bears S. 17° 32′ W. The flag on the

ridge to the west bears S. 77° 14.5' W. From the S. end of the base line, the N. end bears N. 17° 32' E. and the flag on the ridge to the west bears N. 75° 17.3' W.



[fol. 1044] Retracement of the Boundary Line Between Colorado and New Mexico from the 220th to 235th M. Cor.

Computation of Base Line

Course	Distance	Angle with base line	Latitude	Departure
AB.....	7.91	12° 28'	7.724	1.708
AC.....	6.56	15° 05'	6.334 plus	1.707 (-)

Length of Base Line = 14.058.

Solution of Triangle BCD

Log of 14.058.....	= 1.147923	
" sin. 60° 12.5'..	= 9.938438	(plus)
	11.086361	
" sin. 26° 58.2'..	= 9.656661	(-)
" of side BD....	= 1.429760	Side BD = 26.90
" sin. 75° 17.3'..	= 9.985524	plus
" of departure BD	= 1.415284	Departure BD = 26.02

Course	Distance	Bearing	Departure
AB.....	7.91	S. 30° 00' W.	3.96
BD.....	26.90	N. 75° 17.3' W	26.02

Distance triangulated..... = 29.98
Distance from 219th mile point to point A..... = 19.09

Distance to point D..... = 49.07 chs. from 219th mile point.

Chains

39.07 Flag on high, sharp ridge, bearing N. 10° E. and S. 10° W.

Thence by chaining:

NOTE: Owing to an error in the field computation of this triangulation, which was later recomputed, the 220th mile point was set at

80.04 Set stake for temp. 220th mile point.

This error of 4 lks. was later adjusted by shortening one of the following miles an equal amount.

From the stake at the temp. 220th mile point, thence West setting stakes at temporary 221st, 222nd, 223rd and 224th mile points.

From the stake at the 224th mile point, thence West on the 225th temp. mile.

35.87 Center of D. & R. G. R. R. track at foot of steep bluff, at east edge of Navajo River valley, which bears N. 10° W. and S. 18° E. Thence across level valley.

[fol. 1045] Retracement of the Boundary Line Between Colorado and New Mexico from the 225th to 229th M. Cor.

The notes of the original survey state that a Witness Corner was established in this valley, 166 lks. west of east edge of valley. I am unable to find any evidence of this W. C. This valley is subject to overflow from the Navajo River. The Witness Corner was established 35.80 chs. west of the point for the 223rd mile corner, or 6 miles 35.80 chs. W. of the 217th mile corner on top of Archuleta Mountain. By my measurement it is approximately 7 miles 57.50 chs. from the point for the 217th mile corner to the point for the Witness Corner in the Navajo River valley. There is a discrepancy of approximately 1 mile 20 chs. between the two measurements.

I therefore investigate the method reported in the notes of the original survey for obtaining the position of the true line in the Navajo Valley, and the establishment of this Witness Corner.

First I locate the most probable position of the original line, by the present topography. Then from a point on this line 1 ch. west of foot of bluff, and 4.99 chs. north of our present line, thence

S. 2° W. 46.54 chs. as reported in the original notes. This puts me on top of a high bluff on the west side of the

Chains

river, the highest point in a radius of more than 20 ch. The original notes state that bearings were obtained from the bluff, back to the base line on Archuleta Mountain, but I find that no part of Archuleta Mountain is visible from this bluff. High ridges intervene, shutting off all view of Archuleta Mountain.

57.97 Set temporary reference stake in the valley.

From this stake the most probable position of the obl SE. Cor. of the Southern Ute Indian Reservation bears N 6° 18' W. 5.74 chs. dist. I located this position for the Old Reservation Corner by running S. 41° 05' W. 9.13 chs. from the Carpenter 107.025 M. Cor. (the call of the Carpenter notes). I find no corner at this point, but at a point S. 32° E. 16½ lks. dist. is a slight depression where [fol. 1046] it appears a post has stood. From this depression a pine tree, 24 ins. in dia., bears S. 23° E. 26 lks. dist., marked "TNM" on N. W. face, with a bearing tree mark at the base of the tree. This tree was about 18 ins. or 20 ins. in dia., at the time of being marked. I count 35 annular rings since the tree was blazed. The S. E. Cor. of the Southern Ute Indian Reservation was established in the year 1873, and should therefore be 44 years old. Since the bearing tree found has only 35 annular rings I do not consider this corner fully identified. There are no other trees near this point answering the description of the original bearing trees, nor is there any other evidence of this cor.

Having failed to find any evidence of the original line in the valley of the Navajo River, I conclude that the Witness Corner described in the original notes should be established on the true line at a point 166 lks. west of the East edge of the valley. I now return to the stake at 57.97 chs. and continue West, on the retracement of the 225th temp. mile.

80.00 Set stake at 225th temp. mile point.

West, retracing the 226th temp. mile.

76.73 Set a stake on a high mountain ridge, from which I triangulate back to the base line on Archuleta Mountain to check the chaining.

By triangulation the distance from the 217th mile cor. to this stake is 75 lks. less than by the chaining; a total distance of nearly 9 miles. I consider this an excellent check on the chaining and therefore continue with the retracement.

80.00 Set stake for 226th temp. mile point.

From the 226th temp. mile point, thence
West, setting stakes at the temp. 227th and 228th mile points.

[Jul 1947] Retracement of the Boundary Line Between Colorado and New Mexico from the 229th to 232nd Mile Cor.

Chains

West, retracing the 229th temp. mile.

18.41 Set a stake on line on a high spur sloping North, from which point, thence
S. 31° 30' E. to the top of the ridge and triangulate back to the base line on Archuleta Mountain for a check on the chaining.

By triangulation the distance to this point from the 217th mile cor. is 62 lks. less than by the chaining; in a total distance of nearly 11¼ miles.

I consider this an excellent check on the chaining and therefore continue with the retracement.

NOTE.—This ridge is at the distance reported in the notes of the original survey for the ridge on which a "lone pine tree" that "cannot be mistaken for any other" was observed, and to which triangulation was made from the top of Archuleta Mountain. The notes of the original survey also state that from this ridge, a flag was set "on a small elevation, near the valley" of the San Juan River.

I observe that this ridge is not high enough, or prominent enough to appear to an observer on Archuleta Mountain as "a high mountain ridge." This ridge is covered with cedar and pinon trees and scattering yellow pine trees. There is no extra large pine here that could be recognized from a distance, as "lone pine tree that cannot be mistaken for any other." From this ridge the valley of the San Juan River is not visible, because of intervening ridges.

There are no old blazes, nor any other evidences of the original line in this vicinity.

80.00 Set stake for 229th temp. mile point.

Thence West, retracing the 230th temp. mile.

67.20 On West side of top of a high mountain ridge, bearing nearly N. and S. From this point I run North, 3.91 chs. to a point from which I triangulate back to the base line on top of Archuleta Mountain, for a check on the chaining.

Retracement of the Boundary Line Between Colorado and New Mexico from the 229th to 232nd Mile Cor.

Chains

[fol. 1048] By triangulation the distance to this point from the 217th mile cor. is 35 lks. less than by the chaining; in a total distance of more than 12¾ miles.

I consider this an excellent check on the chaining and therefore continue with the retracement.

NOTE.—After completing the 230th temporary mile an error of 10 chs. was discovered in addition in the chaining notes, so that at:

90.00 Set stake for 230th temp. mile point.

This error was corrected by shortening the 234th temp. mile to 70.00 chs.

West retracing the 231st temp. mile

80.00 Set stake for 231st temp mile point.

West, retracing the 232nd temp. mile.

15.10 The top of a conical peak bears S. 70 lks. This peak corresponds to the "small elevation" near the valley described in the notes of the original survey; from which point a base line was run North and from the 40 ch. and 60 ch. points on this base line, angles were turned to a backsight, which was 181.19 chs. E. of the base line.

I observe that from points 40 chs. and 60 chs. N. of this peak, none of the high ridges to the east would be visible, because of intervening bluffs along the San Juan River. A point 181.19 chs. east of the peak would fall at west edge of a valley instead of on a high mountain ridge as described in the notes of the original survey.

50.00 Foot of steep descent. Enter San Juan River Valley.

71.43 Top of old river bank, bears nearly N. and S.

The notes of the original survey show that a Witness Cor. for the 231st mile cor. was established on the river bank 2 chs. East of the point for the 231st mile cor.

I make careful search at this point but am unable to find any evidence of the Witness Cor. or of the line.

Old residents of this valley state that in the year 1911 [fol. 1049] an unusually heavy flood occurred, which changed the entire topography of the valley, washing away the old banks, and forming new channels, so that no correct idea can now be obtained of the topography of the valley as it was before this flood.

80.00 Point for the 232nd temp. mile stake falls in road on a gravel bar. I set temp. stake 10 lks. E.

Chains

Retracement of the Boundary Line Between Colorado and New Mexico from the 232nd to 234th Mile Cor.

West from the 232nd temp. mile point (in road).
Retracing the 233rd temp. mile.

73.40 Approximate point for the original 232nd mile cor. The original notes state that this cor. fell on a sand bar on the S. side of the San Juan River. The 73.40 ch. point on this retracement is in a sandy valley in a dense growth of willow and cottonwoods and tall brush. The N. bank of the San Juan River is several chs. south.

80.00 Set stake for 233rd temp. mile point.

West retracing the 234th temp. mile.

70.00 Set stake for 234th temp. mile point. This stake is set at 70.00 chs. in order to balance the error of 10.00 chs. in the 230th temp. mile.

West, retracing, the 235th temp. mile.

1.10 Bed of canyon, bears N. N. E. and S. S. W. This the canyon noted in the original survey as being 50 lks. E. of the 233rd mile cor. I therefore make a very extensive and exhaustive search along the sides of this canyon for evidence of the 233rd mile cor. but can find none. The hillside on the west side of this canon is covered with sandstones of all shapes and sizes, and such a corner as described in the notes of the original survey could easily have been built, but I can find no evidence of the cor.

31.40 From this point I triangulate back to the base line on top of Archuleta Mountain for a check on the chaining. By triangulation the distance to this point from the 217th [fol. 1950] mile cor. is 168 lks. greater than by the chaining in a distance of 17.4 miles. Considering that only the triangulation tower at the south end of the mountain, and the signal flag erected on line on the mountain are visible, and that I can measure the angles only from the 31.40 ch. point on the retracement this is an excellent check on the chaining.

Retracement of the Boundary Line Between Colorado and New Mexico from the 235th to 236th Mile Cor.

80.00 Set stake for 235th temp. mile point.

The topography on the 235th temp. mile agrees closely with the original survey, allowing for the discrepancy between the temp. and the true lines. But I am unable to find any marks or blazes indicating the position of the original line.

Chains

West, retracing the 236th temp. mile.

80.00 Set stake for 236th temp. mile point.

87.40 Fall 68 lks. N. of the point for original 235th mile cor. This point is 9 lks. N. 45° W. from a large sandstone boulder, fully described in the following notes. The location of this boulder fits the topography recorded in the notes of the original survey and is the only large well defined boulder in a radius of over 3 chs. This boulder is not marked and I have failed to find any evidence of the original line other than the topography. I set a stake 9 lks. N. 45° W from the boulder at the point for the 235th mile cor.

NOTE.—From the 235th mile cor. the original survey was not continued West, but an offset was made to the valley of the San Juan River. I make no attempt to retrace this offset.

From the point for the 235th mile corner.

West on temp. line on 236th mile.

47.77 From stake on high rocky point at E. end of mesa I triangulate back to the base line on top of Archuleta Mountain to check the chaining.

[fol. 1051] By triangulation the distance to this point from the 217th mile cor. is 109 lks. greater than by the chaining, in a total distance of more than 19½ miles. Considering the length of the base line which is less than 1/6 the distance triangulated, this is an excellent check on the chaining.

80.00 Set stake for temporary 236th mile corner.

Retracement of the Boundary Line Between Colorado and New Mexico from the 236th to 240th Mile Cor.

From the temporary 236th mile corner.

Thence West, on a temporary line and at the 80 ch points set stakes for the temporary 237th, 238th, 239th and 240th mile corners.

From the 235th mile corner, the original survey was projected North 68 chs; on an offset and then carried West 4½ miles on a blank line and then another offset of 68 chs. to the South was made to obtain the original line.

4 Links

The 240th mile corner was the first corner established west of the 235th mile corner. Therefore at the temp. 240th mile corner, I make careful search for evidence of the original corner, but fail to find any. This point falls in the valley of the San Juan River.

From the temporary 240th mile corner.

Thence West, retracing the 241st mile.

80.00 The 241st mile corner was not established. Point falls on steep bluff on W. side of the San Juan River.

West, retracing the 242nd mile.

2.00 Set reference stake at top of bluff.

18.81 Fall 117 lks. S. of Astronomical Monument No. 8, described in the following notes.

[fol. 1052] Retracement of the Boundary Line Between Colorado and New Mexico by Wm. C. Perkins, U. S. Surveyor, Sept.-Nov., 1917

Summary of Evidence Adduced and Conclusions

From the evidence adduced in the foregoing retracement I now compute the bearings and lengths of the true line. All bearings are reported to the nearest minute of arc. From the 206rd to the 206th mile corners the distance reported in the notes of the original survey is 240.00 chains; while by this retracement it is found to be 239.17 chs. By retracement there is a total falling of 8 lks. in the 3 miles, which equals a correction of 2.3 lks. per mile. The restored line between these two corners will therefore bear N. 89° 59' W., and the proportionate distance between corners will be 79.723 chs.

From the 206th mile corner to the 211 mile corner the topography agrees closely with the topography recorded in the notes of the original survey. From the 211th mile corner west to Astronomical Station No. 7 the topography found by retracement does not agree in any respect with the topography recorded in the notes of the original survey. From the 206th mile corner to the 211th mile corner the retracement follows a line of occasional blazes, but west of the 211th mile corner there is no evidence of a line. From Astronomical Monument No. 7 running east to the 212th mile point in Ewell Canyon the topography agrees with the topography recorded in the notes of the original survey.

It appears from the topography that the original survey was projected west from the 206th mile corner as far as

Ewell Canyon. It also appears quite probable that the line was then projected further west on a blank line to Astronomical Station No. 7, at which point observations were taken, and finding that this position was south of the 37th degree of Latitude, an offset was made north to the parallel at which point Astronomical Monument No. 7 was established. From the 206th mile Corner Astronomical Station No. 7 bears N. 89° 37' W. 8 miles 47.55 chains. From the 206th mile corner west to a point due south of Astronomical Monument No. 7 is a distance of 8 miles 20.29 chs. From the 206th mile corner to Astronomical Monument No. 7 the original notes call for a line bearing N. 89° 39' W. 8 miles 25.30 chs.

[fol. 1053]

I therefore conclude that to properly restore the original line west of the 206th mile corner the two points, the 206th mile corner, and Astronomical Station No. 7, should govern the alignment, that is, the true line should run N. 89° 37' W. from the 206th mile corner on a direct line toward Astronomical Station No. 7. The distance from corner to corner should be the distance from the 206th mile corner to a point due S. of Astronomical Monument No. 7, 8 miles 20.29 chs. proportioned according to the call of the original notes. This proportion would make the distance from corner to corner to be 79.397 chs. The line from the 206th mile corner should be restored according to this alignment and corners established according to this proportion as far west as Ewell Canyon. From Astronomical Monument No. 7 the line should be restored east as far as Ewell Canyon. Since there is nothing to govern the alignment, the call of the original notes should be followed, and a correction of 3.22 lks. south per mile applied so that the true line restored will bear N. 89° 39' W. The topography recorded in the original notes indicate that the line running east from Astronomical Monument No. 7 was extended as far east as the top of the right (or East) slope of Ewell Canyon. As the east slope of Ewell Canyon is very precipitous at this point and near the top is a high wall of perpendicular sandstone rimrock, it would appear much more probable that the line from Astronomical Monument No. 7 was extended east only to the top of the west slope of Ewell Canyon. For similar reasons it appears quite probable that the original line was extended west from the 206th mile corner only to the top of the east slope of Ewell Canyon.

[fol. 1054]

I therefor conclude first to extend the restored line East from Astronomical Monument No. 7 to an Angle Point on the right (or East) slope of Ewell Canyon, about 1/3rd the way up from the bottom of the canyon to the base of the rimrock. Second. To extend the restored line west from the 206th mile corner to some convenient point on the right (or East) slope of Ewell Canyon, at which point

I will establish a corner for an Angle Point. Third: Then to run N. 38° W. on a connecting line, parallel to bed of the canyon to an intersection with the restored line extended east from Astronomical Monument No. 7. This connecting line will be below the rimrock and far enough above the bed of the canyon so that only a very rough, rugged, broken slope of little value will be traversed. I consider this position of the offset line the most satisfactory position obtainable. Going west from Astronomical Monument No. 7 no trace of the original line was found until reaching the point for the 235th mile corner, at which point there was a falling of 68 lks. This is equivalent to a correction of 3.11 lks. per mile (per 80.00 chs.). Therefore from Astronomical Monument No. 7 to the 235th mile cor. the restored line will bear S. 89° 59′ W.

The original notes show the distance from Astronomical Monument No. 7 to the 217th mile corner to be 214.70 chs. By the retracement this distance is 222.00 chs. The 217th mile corner should be established 6 ch. west of the top of Arcluleta Mountain, as described in the original notes. The temporary stake at the 217th mile corner has been set at a point 6 chs. W. of top of mountain. I therefore proportion the distance found by retracement according to the proportion in the original notes. The depar-
[fol 1055] ture from corner to corner will now become 82.72 chs. instead of 80.00 chs. as reported in the original notes. While from Astronomical Monument No. 7 to the 215th mile cor. it will become 56.56 chs. instead of 54.70 chs. as reported in the original notes.

To restore the Witness Corner in the Navajo River valley it should be set 166 lks. west of the east edge of the valley and on the true line, which is 32.7 lks. south of our retracement. The edge of the valley by retracement is at 55.87 chs. west of the temporary 224th mile point and the edge of the valley bears S. 18° E. The restored line will intersect the edge of the valley 10 lks. further east, or 55.77 chs. west of the temporary 224th mile point. The point for the restored Witness Corner will be 166 lks. west of the edge of the valley or 57.43 chs. west and 32.7 lks. south of the 224th temporary mile point.

Having determined the correct position for the restored Witness Corner in the Navajo Valley, I now proportion the distance from this corner to the 217th mile corner according to the proportion recorded in the original notes. By retracement it is 617.43 chs. from the 217th mile cor. to the restored Witness Corner, while by the original notes it should be 515.80 chs. Therefore, by proportion the departure from corner to corner on the restored line, west of the 217th mile cor. and as far as the restored 223rd mile corner will be 95.763 chs. From the 223rd restored mile corner to the restored Witness Corner will be, by propor-

tion, 42.854 chs. instead of 35.80 chs. as reported in the original notes.

From the restored Witness Corner in the Navajo Valley to the 235th mile corner by retracement is 969.97 chs. while by the original survey it was 924.20 chs. Therefore, by proportion, the departure from corner to corner will be 78.768 chs., instead of 80.00 chs. as reported in the original survey, while from the restored Witness Corner to the 224th mile corner will become 43.522 chs. instead of 44.20 chs. as in the original survey.

[fol. 1056] From the 235th mile corner to Astronomical Monument No. 8 by retracement the distance is 498.31 chs. By the original survey it was 501.70 chs. From the 235th mile corner to Astronomical Monument No. 8 there is a difference in latitude of 117 lks. which equals a correction of 18.8 lks. per mile (per 80.00 chs.)

From the 235th mile corner to Astronomical Monument No. 8 the restored line will bear N. 89° 52′ W. and the departure from corner to corner by proportion will be 79.46 chs. while from the restored 241st mile point to Astronomical Monument No. 8 by proportion, will be 21.55 chs. instead of 21.70 chs. as reported in the original survey.

The notes of the original survey would indicate that from Astronomical Monument No. 6 the survey was projected west, on a tangent to the parallel taking topography on the tangent and that West of the 191st mile cor. temp. corners were established making the offset from tangent to parallel at temp. cors. as far as Astronomical Monument No. 7, at which point after offsetting from tangent to parallel there was still a falling of 75 lks. The notes of the original survey would further indicate that a new tangent was initiated at Astronomical Monument No. 7 and produced west as far as Astronomical Monument No. 8, at which point after offsetting from tangent to parallel, there was still a falling of 410 lks. S. of Astronomical Monument.

Attention is called to the fact that if this procedure has been followed, and the topography taken on the tangent to the parallel, that the topography would not fit the corners as established. Thus if a tangent to the parallel had been run west from Astronomical Monument No. 7 to Astronomical Monument No. 8, a total distance by retracement of 8.1 miles, the tangent would have been 5.92 chs. S. of the parallel and since the parallel was reported 4.10 chs. S. of Astronomical Monument No. 8, the tangent [fol. 1057] would then have been 5.92 chs. plus 4.10 chs. = 10.02 chs. S. of Astronomical Monument. It is clearly evident that if the topography had been taken on the tangent it would have been for a line 10.02 chs. S. of Astronomical Monument No. 8.

At the 203rd mile cor. the notes state that the temp. cor. was established on the parallel by making an "offset from tangent." The description of the 203rd established mile cor. states that from the temporary corner an offset of 38.48 lks. to the N. was made. This should put the 203rd established mile corner 2.30 chs. N. of the tangent at this point, since the tangent was initiated at Astronomical Monument No. 6, more than 16 miles to the east. Had the topography at the 203rd mile corner been taken on the tangent, there would have been no mention of the "pond of water, or sink hole, 150 lks. wide, muddy water" which is 1 ch. west of the 203rd mile corner.

By retracement I have found and identified the 203rd, the 206th, and the 235th mile corners, also Astronomical Monument No. 7 and Astronomical Monument No. 8. At all of these corners I have found that the topography recorded in the notes of the original survey fits the positions of these corners. It is therefore evident that all corners were established on the line as surveyed, without making offsets and the topography recorded in the notes of the original survey is the topography of the true line.

Restoration Survey of the Boundary Line Between Colorado and New Mexico

I now restore the true line which is as follows: At the 203rd mile corner I find an aspen post, 3 ins. sq. 40 ins. above ground, marked

N. M. on the south face,
1901 on the west face,
C on the north face,
203 M. on the east face.

[fol. 1058] This is evidently the corner post set by Chas. A. Johnson, Commissioner for Colorado, when he resurveyed this line in the year 1901. His report states that he found the 203rd mile corner post "in place, well rotted. I re-set same." From the base of this aspen post I find the decayed remains of a fir post. These remains are 6 ins. wide on the surface, and extend northeast 5 ft. I believe these to be the remains of the original cor. post. From the aspen corner post

An aspen tree (living) 16 ins. dia. bears S. 5° W. 25 lks. dist., marked N. M. 203 with a bearing tree blaze at the base of the tree. This is one of the original bearing trees.

An aspen tree (dead) 14 ins. dia. bears N. 6° 30' E. 57 lks. dist., marked C. 203 B. T. This is the other other original bearing tree.

I consider this corner fully identified and restore it as follows:

Set an iron post, 8 ft. long, 3 ins. in dia. 24 ins. in the ground for the 203rd mile cor., with brass cap marked as follows:

I mark four new bearing trees, described as follows:
An aspen, 10 ins. in dia. bears N. 29° 15′ E. 45 lks. dist., marked "DAR. 203 MOOLOBT."
An aspen, 6 ins. dia. bears S. 64° 15′ E. 32½ lks. marked DAR. 203 M. N. M. B. T.
A-fir, 16 ins. dia. bears S. 75° 30′ W. 52 lks. dist. marked DAR. 203 M. N. M. B. T.
An aspen, 16 ins. dia. bears N. 61° 15′ W. 66 lks. dist. marked DAR. 203 M. Colo. B. T.
The magnetic declination at this corner is 15° 15′ E.

Chains	
[fol. 1059]	Thence N. 89° 59′ W. on the 204th mile. Over rolling land, through heavy aspen, pine and fir timber and scattering undergrowth, following a well defined line of old blazes.
1.00	East edge of dry lake, or "sink hole" 140 lks. in dia. covered with fallen timber, bears N. and S.
2.40	West edge of dry lake, bears N. and S.
6.20	Low spur slopes N. N. W. Descend a gradual N. N. W. slope.
11.20	Leave timber, bears N. N. E. and S. S. W. Enter an open park.
12.00	Small seap-spring on line, no running water. Thence across level bed of draw, course N.
13.20	Leave draw. Ascend a grad al E. slope.
19.00	Leave open park, bears N. W. and S. E. Enter heavy aspen, pine and fir timber. The line follows a well defined line of old blazes.
45.80	Low spur slopes N. N. E. Thence over rolling land.

Chains

48.50 Small draw, 50 lks. wide, course N. Leave rolling land and ascend steep N. E. slope.

49.00 Leave heavy timber, bears N. and S. W. and leave the line of blazes. Enter dense oak brush.

53.60 Top of steep N. E. slope, bears N. W. and S. E. Thence across N. slope.

59.70 Head of ravine, course N. N. E. about 2 chs. N. E. of saddle in mountain ridge. Leave N. slope and ascend steep E. slope.

63.00 Top of mountain ridge, sloping S. E. bears N. W. and S. E. Descend a steep S. W. slope.

66.70 Foot of slope, near head of a wide flat draw, course S. E. Ascend on a gradual S. E. slope.

79.40 Mountain ridge, bears N. W. and S. E. Descend a steep W. slope.

79.723 Find no evidence of the original cor[illegible].

At proportionate distance.

Set an iron post, 3 ft. long, 3 ins. in dia. 18 ins. in the ground to solid rock and build a mound of stone 4 ft. base, 1½ ft. high around the post, for the 204th mile corner, [fol. 1060] with brass cap marked as follows:

From which

A pine, 10 ins. dia. bears S. 34° 30' E. 97 lks., dist., marked Dar. 204 N. M. B. T.

Cross on a basalt boulder, 3 ft. x 2 ft., 2 ft. high bears S. 56° W. 40 lks. dist., marked B. O. 204.

A fir, 8 ins. dia. bears N. 65° 30' W. 134 lks. dist., marked Dar. 204 M. Colo. B. T.

A cross on S. face of basalt boulder, 1 ft. x 3 ft. 1½ ft. high bears N. 48° 45' W. 40 lks. dist.

There is no room on the S. face of the boulder for other marks, so I mark on the W. face of the boulder B. O. 204.

There is no bearing object or bearing tree in this N. E. quadrant.

A small peak about 100 ft. higher than the corner bears N. 38° E. about 8 chs. dist.

This cor[stands on steep W. slope 4 ft. lower than top of mountain ridge.

The magnetic declination at this corner is 15° 15′ E.

Land: Mountainous.

Soil: rocky and sandy; 4th rate.

Timber: Pine, aspen and fir.

Chains

N. 89° 30′ W. on 205th mile.

Descend steep W. slope through dense brush.

16.60 Foot of steep W. slope in ravine, course N. W.

Thence over a rolling N. slope.

20.50 Slope changes. Enter heavy timber, bears N. W. and S. E. and descend on a steep N. W. slope.

27.60 Foot of slope in a ravine, course S. W. Ascend along a [fol. 106] steep S. slope.

30.00 Top of ascent, on steep S. slope. Slope changes. Descend S. W. slope.

35.10 Ravine, course N. W. Foot of descent. Ascend along a nearly N. slope.

38.50 Top of ascent, on spur sloping N. Descend gradually over a nearly N. slope.

41.40 Slope changes. Descend Steep S. W. slope.

58.50 Foot of slope bears N. and S. Thence over nearly level valley land, gradually descending.

71.50 Enter level valley land bears E. N. E. and W. S. W. bordering a small stream.

Leave timber and undergrowth.

76.10 Stream of clear pure water, 3 lks. wide, 2 ins. deep, muddy channel, course W. S. W.

79.723 Find no evidence of the original corner.

At proportionate distance.

Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the 205th mile corner, with brass cap marked as follows:

Chains

From which

Cross cut on W. face of a red sandstone boulder in the valley, which is 6 ft. x 10 ft. at the base and slopes to a ridge bearing N. and S. 3 ft. above ground, cross bears N. 66° 11′ E. 10.88 chs. dist., marked B. O. 205.

An oak, 12 ins. in dia. bears N. 10° 20′ E. 258 lks. dist., marked Dar. 205 M. Colo. B. T.

A willow, 8 ins. dia. bears S. 50° E. 134 lks. dist., marked Dar. 205 M. N. M. B. T.

[fol. 1062]

A willow, 6 ins. dia. bears S. 58° 45′ W. 213 lks. dist., marked Dar. 205 M. N. M. B. T.

An oak, 8 ins. dia. bears N. 60° 37′ W. 440 lks. dist., marked Dar. 205 M. Colo. B. T.

Stream of water bears South 105 lks. dist.

The magnetic declination at this corner is 15° 00′ E.

Land: Mountainous and level.

Soil: rocky and sandy: 2nd rate.

Timber: Oak, pine, spruce, aspen and willows.

N. 89° 59′ W. on the 206th mile.

Over level open valley.

6.70 Leave valley, bears N. E. and S. W. Ascend S. E. slope.

7.10 Enter dense oak brush, bears N. and S.

8.20 Top of ascent. Low spur ridge, slopes S. Descend S. W. slope.

13.00 Center of small valley, 240 lks. wide, bears S. Foot of descent. Ascend gradual E. slope.

21.40 Top of ascent. Low spur ridge, slopes S. Descend W. slope.

25.00 Foot of descent. Ascend a gradual E. slope.

30.80 Low spur ridge, slopes S. W. Descend W. slope.

33.10 Wire fence, bears N. and S. at foot of slope. Ascend a rolling S. E. slope.

46.90 Top of ascent, at S. end of ridge. Spur slope S. Descend Ascend a gradual S. S. W. slope.

51.70 Slope changes. Descend a steep S. W. slope.

57.70 Foot of steep S. W. slope. Thence descend over a gradual S. S. W. slope.

68.30 Cross a small spur ridge, sloping N. Continue descent.

72.60 Foot of descent. Center of valley 180 lks. wide, slopes S. S. W. Ascend a gradual S. E. slope.

76.60 Top of low spur, slopes N. Descend N. W. slope.

78.99 Enter an open valley, bears S. S. W. and N. N. E. Thence across level valley.

79.723 Set an iron post, 3 ft. long, 3 ins. in dia. 24 ins. in the

[fol. 1063] ground for the 206th mile corner, with brass cap marked as follows:

From which

A black jack pine, 20 ins. in dia. bears N. 34° 05' E. 581 lks. dist., marked D. A. R. 206 M. Colo. B. T.

A black jack pine, 22 ins. in dia. bears S. 36° 40' E. 281 lks. dist., marked Dar. 206 M. N. M. B. T.

A black jack pine, 20 ins. dia. bears S. 59° 20' E. 260 lks. dist., marked Dar. 206 M. N. M. B. T.

A black jack pine, 16 ins. in dia. bears N. 22° 05' W. 213 lks. dist., marked Dar. 206 M. Colo. B. T.

From this cor. a pine stump 30 ins. in dia. bears N. 15° 00' E. 250 lks. dist., which I believe to be the stump of one of the original bearing trees.

From the cor. I measure S. 72° W. 237 lks. and find a slight depression where it appears a tree might have stood. Logging operations and brush fires have destroyed all other evidences of the original corner.

As there are no other stumps in the N. E. quadrant that fit the position of the 206th mile corner I consider this bearing tree fully identified and the 206th mile corner, which was located from this stump, to be properly restored.

The magnetic declination at this corner is 15° 10' E.

Land: mountainous.

Soil: Sandy; 2nd rate.

Timber: pine.

Undergrowth: oak.

Chains

N. 89° 57' W: on the 207th mile.

Over open valley.

.70 Leave valley. Ascend steep E. S. E. slope.

[fol. 1064] Enter brush, bears N. and S.

Chains	
4.80	Top of ascent on spur sloping N. E. Descend across steep N. N. W. slope.
5.00	Conical peak bears S. 50° lks. Slope changes to a steep N. W. slope.
5.44	Pine tree, 18 ins. in dia. bears N. 9 lks. On this tree are two very old blazes, indicating that the line was south of the tree. I count 47 annular rings since the tree was blazed.
12.07	Old logging road, bears N. and S. At foot of steep descent. Descend gradually across valley.
12.40	Center of small valley, 1 ch. wide, slopes S. Ascend E. slope.
14.50	Top of ascent. Thence along S. slope.
16.10	End of slope. Descend a gradual S. W. slope.
21.32	Leave brush, bears N. N. W. and S. S. E.
22.70	Foot of slope, bears N. 10° W. and S. 10° E. Enter meadow.
28.10	Stream of clear pure water, 2 lks. wide, course N. W. for about 20 lks. then nearly west.
29.40	Stream is 3 lks. N. of line at S. end of bend.
36.70	Leave meadow, enter dense brush, bears N. and S. Ascend steep N. E. slope.
38.30	Top of ascent on spur sloping N. Thence along a steep N. slope.
50.20	Low ridge, bears N. N. W. and S. S. E. Descend S. W. slope.
54.52	The 125 mile corner on the Carpenter line bears N. 56.44 chs.
54.80	Road, bears N. W. and S. E.
57.30	Foot of slope, enter valley, bears N. W. and S. E. Thence across level meadow land.
78.75	Stream of water, 3 lks. wide, 6 ins. deep, course W. N. W.
79.12	Same stream, course S.
79.397	Find no evidence of the original corner. At proprotionate distance.

[fol. 1065] Set an iron post, 3 ft. long, 3 ins. in dia. 24 ins. in the ground for the 207th mile corner with brass cap marked as follows:

Chains

Raise a mound of stone 2 ft. base, 1½ ft. high N. of cor. This corner stands in a bend, in the stream, 24 lks. N. of stream and 25 lks. E. of it. The soil in this bend is very marshy.

In order to further preserve the location of this corner, I note the following bearings:

A yellow pine, 30 ins. in dia. standing at N. edge of valley, bears N. 66° 19′ E. about 10 chs. dist.

The S. end of a sandstone ledge on a steep mountain side facing S. W. bears S. 89° 33′ E., the verticle angle to which is 5° 04′ about 2 miles distant.

E. edge of overhanging ledge at E. end of mesa bears S. 1° 09′ W. about 60 chs. dist., the verticle angle to which is 8° 14′.

Point on side of a perpendicular ledge at N. W. point of mesa, bears S. 37° 58′ W. about ½ mile dist., the verticle angle to which is 10° 24′.

The magnetic declination at this corner is 15° 00′ E.

Land: mountainous.
Soil: Sandy; 2nd rate and marshy.
Timber: pine.
Undergrowth: Oak.

N. 89° 57′ W. on the 208th mile.
Over meadow land.

.25 Stream of water, 3 lks. wide, course N. 20° W.
3.67 Road, bears N. W. and S. E.
5.50 Center of marshy draw, 50 lks. wide across the bottom, [fol. 1066] course N. W.
7.80 Leave meadow land, bears N. 20° W. and S. 20° E. Ascend steep E. N. E. slope.
9.20 Enter oak brush, bears N. and S.
11.40 Spur, slopes N. Thence across steep N. slope.
14.30 Ridge, bears N. W. and S. E. Descend a gradual S. W. slope.
16.90 Head of small valley, course S. E. Ascend E. slope.
19.60 Spur ridge, slopes N. Descend N. W. slope.
24.40 Draw, course N. 30° E. Ascend E. slope.
27.60 Ridge, bears N. 20° W. and S. 20° E. Descend W. slope.
33.30 Leave oak brush, N. and S.
36.00 Base of hill, bears N. 60° E. and S. 60° W. Thence across meadow. Stream of water, 3 lks. wide, follows base of hill.
44.40 Road bears N. E. and S. W.
45.60 Leave meadow, bears N. W. and S. E. Ascend N. E. slope.
46.60 Enter oak brush, bears N. W. and S. E.
54.30 Leave oak brush, bears N. and S. Low ridge N. and S. Descend gradual W. slope.
56.00 Draw, course N. E. Ascend gradual E. slope.

Chains

39.50 Enter brush, bears N. and S.
74.60 Ridge, bears N. and S. Descend W. N. W. slope.
76.20 Head of draw, course N. Ascend steep N. E. slope.
79.397 Find no evidence of the original corner.
At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. in dia. 24 ins. in the ground for the 208th mile corner, with brass cap marked as follows:

[fol. 1067] From which

A cross on a sandstone ledge, the exposed surface of which is 6 ft. x 3 ft. bears S. 64° 00′ W., 184 lks. dist., marked B. O. 208.

A cross on a sandstone boulder, 4 ft. x 1½ ft. 1 ft. high bears N. 44° 00′ W. 106 lks. dist., marked B. O. 208.

There are no trees available for bearing trees and no other available bearing objects. I therefore observe the bearings to the following objects.

A lone yellow pine tree, 24 ins. in dia. standing at E. edge of a small draw, and W. edge of oak brush, bears N. 60° 19′ E. about 8 chs. dist.

E. edge of overhanging ledge at N. E. point of rounded mesa, bears S. 37° 13′ W. about 15 chs. dist. and the vertical angle to which is 31° 22′.

A projecting point on the side of a perpendicular cliff at N. W. point of mesa, bears S. 64° 48′ W., about 25 chs. dist., the vertical angle to which is 22° 22′.

The 208th mile corner stands in dense brush, near the foot of the N. E. slope of a rounded mesa.

The magnetic declination at this corner is 15° 00′ E.

Land: rolling.
Soil: sandy, 2nd rate.
Timber: pine.
Undergrowth: oak.

Chains

N. 89° 57' W. on the 209th mile.

Ascend steep N. E. slope through dense brush

5.60 Slope changes. Ascend gradually over a very steep N. N. E. slope.

15.70 Sharp spur at top of ascent, slopes N.

From this spur the line descends a very steep N. W. slope, covered with an exceedingly dense undergrowth and then ascends a steep N. E. slope to

52.60 Low ridge, bears N. 60° W. and S. 60° E. sloping S. E.

77.50 Top of high mesa, bears N. 15° W. and S. 15° E. Thence [fol. 1608] across nearly level mesa.

78.90 Leave nearly level top of mesa. Enter dense aspen thicket bears N. 15° W. and S. 15° E. Descend W. slope

79.397 Find no evidence of the original corner.

At proportionate distance

Set an iron post, 3 ft. long, 3 ins. in dia. 24 ins. in the ground for the 209th mile corner with brass cap marked as follows:

From which

An aspen, 5 ins. dia. bears N. 23° 00' E. 13 lks. dist., marked Dar. 209 M. Colo. Bt.

An aspen, 5 ins. in dia. bears S. 26° E. 19½ lks. dist., marked Dar. 209 M. N. M. Bt.

An aspen, 4 ins. dia. bears S. 43° W. 27½ lks. dist., marked Dar. 209 M. N. M. Bt.

An aspen 4 ins. dia. bears N. 26° 30' W. 25½ lks. dist., marked Dar. 209 M. Colo. Bt.

The magnetic declination at this cor. is 15° 00' E.

Land mountainous.

Soil: rocky; 3rd rate.

Timber: aspen.

Undergrowth: oak.

Chains

N. 89° 57' W. on the 210th mile.

From the 209th mile corner the line descends a steep N. W. slope into a deep canyon, course S. W., at about 18 chs. then ascends a steep S. E. slope, crossing numerous high sandstone ledges to a high rocky spur sloping south at about 36 chs. beyond which another deep canyon, course S. about 48 chs. is crossed.

63.50 Top of high ridge, bears N. and S. between two canyons. From this ridge the line descends a gradual W. slope which [fol. 1069] soon changes to a steep W. slope and descends into a deep canyon, course S.

79.397 No corner was established at this point in the original survey. Point for the 210th mile corner falls in a deep canyon. As this would put the corner in a very inaccessible position, I determine to set a Witness Corner at the top of the west slope of this canyon.

Land: rough and mountainous.
Soil: rocky, 4th rate.
Timber: pine and aspen.
Undergrowth: oak.

N. 89° 57' W. on the 211th mile.

Crossing deep canyon.

12.00 Top of west slope of canyon, bears N. 30° E. and S. 30° W. Set an iron post, 3 ft. long, 3 ins. in dia. 24 ins. in the ground for witness corner to the 210th mile corner with brass cap marked as follows:

From which

A yellow pine, 16 ins. in dia. bears N. 40° 30' E. 82 lks. dist., marked Dar. 210 M. W° C. Colo. Bt.
A yellow pine, 26 ins. in dia. bears N. 5° 15' W. 259 lks. dist., marked Dar. 210 M. W. C. Colo. Bt.

Chains

No other trees available for bearing trees.
Raise a mound of stone 3 ft. base, 2 ft. high N. of Cor
The magnetic declination at this cor. is 15° 00' E.
Thence across nearly level mesa, through scattering timber and dense brush.

42.20 Head of draw, course S. W.

56.50 Old logging road, bears N. 70° E. and S. 70° W.

73.50 Head of draw, course S. W. Ascend a gradual S. E. [illegible 1070] slope.

77.00 Low ridge, bears N. E. and S. W. Descend a gradual W slope.

79.397 Find no evidence of the original corner.
At proportionate distance
Set an iron post, 3 ft. long, 3 ins. in dia. 24 ins. in the ground for the 211th mile cor. with brass cap marked as follows

From which

A yellow pine, 24 ins. in dia. bears N. 87° 00' E. 74 lks. dist., marked Dar. 211 M. Colo. Bt.
A black jack pine, 16 ins. in dia. bears S. 14° 00' E. 30 lks. dist., marked Dar. 211 M. N. M. Bt.
A black jack pine 14 ins. in dia. bears S. 72° 00' W. 152 lks. dist., marked Dar. 211 M. N. M. Bt.
A yellow pine, 16 ins. in dia. bears N. 74° 00' W. 46 lks. dist., marked Dar. 211 M. Colo. Bt.

The magnetic declination at this corner is 15° 15' E.
Land: mountainous with level mesa.
Soil: sandy and rocky: 4th rate.
Timber: pine.
Undergrowth: oak.

N. 89° 57' W. on the 212th mile.
Descend a gradual N. W. slope through scattering timber and dense brush.

Chains

12.70 Draw, 2 chs. wide, course S. 70° W. Continue to descend.
19.00 Leave thick brush bears N. and S. Descend steep N. W. slope through scattering timber.
25.20 Bed of canyon, with an old log shute in it, course S. W. Ascend a steep S. E. slope.
31.00 Leave S. E. slope. Thence over a rolling rugged S. slope along the top of Ewell Canyon.
38.00 Point of ridge, facing S. overlooking Ewell Canyon.
[fol. 1071] The line now descends over a precipitous sandstone cliff, and below that over a very steep rocky S. W. slope on the right side of Ewell Canyon.
47.714 Set an iron post, 3 ft. long, 3 ins. dia. 24 ins. in the ground for an Angle Point with brass cap marked as follows:

From which

A cross on the S. face of a sandstone boulder 3 ft. x 3 ft., 3 ft. high bears N. 14° 45' E. 24 lks. dist., marked B. C. A. P.
A fir, 20 ins. in dia. bears N. 63° 30' E. 77 lks. dist., marked Dar. A. P. Colo. Bt.
A cross on an exposed sandstone surface, 3 ft. x 5 ft., bears S. 66° 30' E. 48 lks. dist., marked B. C. A. P.
A yellow pine, 14 ins. in dia. bears S. 43° 30' W. 147 lks. dist., marked Dar. A. P. N. M. Bt.
A fir 12 ins. in dia. bears N. 59° 30' E. 166 lks. dist., marked Dar. A. P. Colo. Bt.

This Angle Point is on the right slope of Ewell Canyon, 428 chs. E. of the road and 5.44 chs. E. of the stream in the bed of the canyon.

The magnetic declination at this corner is 15° 00' E.

Land: mountainous.
Soil: rocky; 4th rate.
Timber: pine and fir.
Undergrowth: oak.

Chains

N. 38° 00′ W. on connecting line.
Descend steep N. W. slope; through dense brush.
4.50 Ravine, course S. W. Ascend steep S. E. slope.
7.65 Top of steep ascent. Thence along steep W. S. W. slope.
14.95 End of level on left bank of ravine. Descend steep N. W. slope.

[fol. 1072]

17.93 Ravine, course S. W. Ascend steep S. E. slope.
20.45 Top of ascent. Thence along steep S. W. slope.
25.10 Descend over a W. S. W. slope.
30.80 Ravine, course W. Ascend steep S. slope.
34.90 Top of ascent. Thence over W. S. W. slope.
41.10 A yellow pine, 24 ins. in dia:, marked with two notches on each side, facing the line for a line tree.
41.40 Spur slopes S. Descend over a steep W. slope.
48.35 Spur, slopes W. S. W. Continue descend.
53.26 Intersect the restored line, produced S. 89° 59′ E. from Astronomical Monument No. 7 at a point 78.29 chs. S. 89° 59′ E. from the point for the 213th mile corner. At point of intersection.

Set an iron post, 3 ft. long, 3 ins. in dia: 20 ins. in the ground with a mound of stone 3 ft. base, 1 ft. high built around the post for an Angle Point with brass cap marked as follows:

From which

A fir, 10 ins. dia. bears N. 70° 45′ E. 54 lks. dist., marked Dar. A. P. Colo. B. T.

A cross on an exposed sandstone surface, 4 ft. x 6 ft. facing S. W. bears S. 28° 30′ E. 36½ lks. dist., marked B. O. A. P.

A yellow pine, 24 ins. in dia. bears S. 25° 30′ W. 51 lks. dist., marked Dar. A. P. N. M. B. T.

A cross on the E. face of a sandstone boulder, 20 ft. x 20 ft. high, bears N. 73° 45′ W., 27 lks. dist., marked B. O. A. P.

The bed of a small wash, bears west 12 lks.

The magnetic declination at this corner is 15° 10′ E.
Land: mountainous.
Soil: rocky; 4th rate.
Timber: pine and fir.
Undergrowth: oak.

Chains

[fol. 1073] N. 89° 59′ W. on the 213th mile.
Descend steep S. W. slope over sandstone boulders, and through scattering undergrowth.

5.35 The witness closing cor. on the New Mexico Principal Meridian bears South 16.82 chs. As this cor. is at the top of the left slope of Ewell Canyon, I set a sandstone 24 x 16 x 6 ins. 18 ins. in the ground at a point 10 lks. S. of line marked N. M. P. M. on the S. face for a reference point only.

5.78 Stream of water, 5 lks. wide, 6 ins. deep course N. 75° W. in the bed of Ewell Canyon. Foot of slope. Thence across narrow valley.

6.42 Road N. W. and S. E.

6.65 Edge of valley, bears N. W. and S. E. Ascend steep N. E. slope. Enter dense undergrowth.

22.00 Top of left slope of Ewell Canyon, bears N. W. and S. E. Thence over nearly level mesa. Leave dense brush. Enter scattering timber and brush.

30.40 Low ridge, bears N. W. and S. E. Descend a gradual W. slope.

38.50 Head of draw, course S. W. Ascend a gradual E. slope.

42.00 Ridge, bears N. and S. Descend W. slope. Enter dense undergrowth.

68.20 Leave dense undergrowth, bears N. E. and S. W.

68.90 Draw, course S. W. Ascend S. E. slope.

73.00 Ridge, bears N. E. and S. W. Descend a gradual W. slope.

78.29 The 213th mile point by proportion.
No corner set here, bearing trees especially suitable 100 lks. West.
Land: rolling.
Soil: Sandy; 3rd rate.
Timber: pine and spruce.
Undergrowth: fir, spruce and oak.

N. 89° 59′ W. on the 214th mile.
Descend a gradual W. slope through scattering timber and oak brush.

1.00 Set an iron post 3 ft. long, 3 ins. dia. 24 ins. in the ground

[Vol. 1074] for a Witness Corner to the 213th mile cor., with brass cap marked as follows:

Chains

From which

A black jack pine, 8 ins. dia. bears N. 70° 15' E. 64 lks. dist., marked Dar. 213 M. W. C. Colo. B. T.

A black jack pine, 16 ins. in dia. bears S. 68° 00' E. 46 lks. dist., marked Dar. 213 M. W. C. N. M. B. T.

A black jack pine 10 ins. in dia. bears S. 37° 45' W. 56 lks. dist., marked Dar. 213 M. W. C. N. M. B. T.

A black jack pine, 20 ins. dia. bears N. 46° 00' W. 76½ lks. dist., marked Dar. 213 M. W. C. Colo. B. T.

The magnetic declination at this corner is 15° 00' E.

3.87 Fall 46 lks. N. of the limestone 4 x 8 ins. 8 ins. above ground marked M. C. N. M. on S. face, and C. on N. face for the closing cor. of secs. 11 and 12, New Mexico T. 32 N., R. 1 W.
This cor. is fully identified by its bearing trees.

6.20 Draw 50 lks. wide, course S. W. Continue descent over a rolling W. slope.

26.50 Ridge, bears N. and S. Descend W. slope.

42.90 Irrigation ditch 10 lks. wide, course S.

46.40 Slope changes. Descend a steep W. slope.

48.20 Old irrigation ditch, 10 lks. wide, course S.

49.90 Leave oak brush, bears N. and S.

50.06 Telephone line bears N. to Edith, Colo. and S. to Lumberton, N. M.

50.19 Intersect N. edge of a sandstone 6 x 12 ins. 24 ins. above ground, firmly set and marked.

Col. W. C. 214 M. on N. face.
N. M. on S. face.
B. on W. face.
No marks on E. face.

Chains

This is the Witness Corner established by surveyor Blair.

[fol. 1075] Burwell, under the direction of Charles A. Johnson, Commissioner for the State of Colorado, in the year 1904.

50.45 Road at base of hill, bears N. and S.

50.70 Wire fence, bears N. and S. Wire fence begins here and extends West on line.

50.82 The 118.1th mile corner on the Carpenter line, bears North 13.87 chs. Thence over gradual descent.

52.30 Stream of water, 6 lks. wide, 2 ins. deep, course N. 30° W. Foot of descent. Ascend E. N. E. slope.

61.20 Top of ascent. Spur ridge, slopes N. N. W. Descend W. N. W. slope.

63.60 Ravine, course N. Ascend N. E. slope.

66.30 Top of ascent. Spur ridge slopes N. E. Descend steep W. N. W. slope.

67.60 Foot of steep descent, bears N. 60° E. and S. 60° W. Thence descend over a very gradual slope.

69.10 Foot of descent at E. edge of level valley, bears N. 68° E. and S. 54° W. Thence over level cultivated land. Wire fence 4 lks. S. of line bears West.

76.85 Wire fence, begins 4 lks. S. of line and extends North.

79.397 Find no evidence of the original corner.

At proportionate distance.

Set an iron post, 3 ft. long, 3 ins. dia. 24 ins. in the ground for the 214th mile corner with brass cap marked as follows:

From which

A cottonwood 6 ins. dia. bears S. 6° E. 51 lks. dist. marked Dar. 214 M. N. M. B. T.

A cottonwood 12 ins. dia. bears S. 51° W. 41 lks. dist., marked Dar. 214 M. N. M. B. T.

[fol. 1076] No other trees available for bearing trees.

The E. edge of an overhanging ledge on W. side of Navajo River bears N. 57° 06' E. about 1½ miles dist. The foot of a steep slope, at left edge of valley, bears South 315 lks.

Right bank of ravine, bears W. 60 lks.
This corner stands in a cultivated field, so that pits are impracticable.
The magnetic declination at this corner is 15° 00′ E.
Land: rolling.
Soil: sandy; 2nd rate.
Timber: pine and cottonwood.
Undergrowth: oak.

Chains	
	N. 89° 59′ W. on the 215th mile.
	Over level cultivated land.
.50	Leave cultivated land, bears N. W. and E. S. E. Enter cottonwood and willow brush.
.60	Right bank of ravine, course N. W.
1.30	Left bank of ravine.
1.60	Leave brush, bears N. and S.
	Thence over open valley land.
6.20	Left bank of Navajo River, bears N. N. E. and S. S. W.
	Thence across river.
7.35	Right bank of Navajo River bears N. N. E. and S. S. W.
	Thence across gravel bar.
9.70	Leave gravel bar, bears N. and S. E. edge of large sawdust pile. The remains of the old saw mill at Edith Colo., bears North 5 chs.
16.70	W. edge of sawdust pile. Thence across level valley.
18.75	Old abandoned R. R. grade bears N. E. and S. W.
23.60	Old abandoned railroad grade, leading to saw mill bears N. E. and S. W.
25.11	At the point determined for Astronomical Monument No. 7 set an iron post 3 ft. long, 3 ins. dia. 24 ins. in the ground

[fol. 1077] with brass cap marked as follows:

Raise a mound of stone 3 ft. base, 2 ft. high N. of cor.
No trees are available for bearing trees.
As the mound of stone is liable to be destroyed I observe the following bearings:

1. The E. edge of a projecting ledge at top of west slope of the Navajo River Canyon bears N. 63° 40′ E. about 2 miles dist., the verticle angle to which is 3° 45′. This corresponds to the first bearing given in the original description for this cor.
2. A stone mound on the north peak, seen through the gap of the Navajo River, bears N. 65° 51′ E. about 20 miles dist., the verticle angle to which is 3° 25′. The original description of this corner gives a bearing through the river gap to a "mountain ridge." The bearing given in the original description is to a point midway between two peaks.
3. Highest point on the south peak, seen through the gap of the Navajo River, bears N. 65° 57′ E. about 20 miles dist., the vertical angle to the top of the peak being 3° 21′.
4. Overhanging ledge on bluff on south side of Navajo River Canyon, facing S. W. square on the west and bottom sides; west edge of ledge bears N. 69° 04′ E. about 2½ miles distant, the verticle angle to the bottom of the ledge being 3° 21′.
5. The original notes give a bearing to "point of mountain ridge, on south side of Navajo River, bears S. 69¾° E. about 2½ miles." This is rather indefinite, but there is a ridge in this direction about ¾ mile dist.
6. Cedar tree, standing on a west slope, bears S. 67° 57′ E. about ½ mile dist., the verticle angle to the base of the tree being 3° 43′.
7. Fir tree, on steep N. W. slope, bears S. 38° 11′ E., about 20 chs. the verticle angle to the base of the tree being 5° 14′.
8. The south one of 3 peaks, seen down the valley of the Navajo River bears S. 24° 13′ W., about 3 miles dist., the verticle angle to the top of the peak being 1° 26′.
9. The north one of the three peaks, bears S. 32° 04′ W., about 2 miles dist., the verticle angle to the top of the peak being 1° 43′. This bearing corresponds to the bearing in the original description to a "mountain peak, bears S. 32½° W." [fol. 1078]
10. A lone pine tree, on E. slope of Cemetery Hill, near the top at south end of hill, bears S. 49° 36′ W., about 15 chs. dist., the verticle angle to the base of the tree being 6° 47′.
11. A lone pine tree, bear the top of the E. slope at the the center of Cemetery Hill, bears S. 62° 30′ W., about 10 chs. dist., the verticle angle to the base of the tree being 9° 41′.

The magnetic declination at this corner is 15° 00′ E.
This position of the restored Astronomical Monument No. 7 fits the topography as recorded in the original notes. No other position of the cor. would do this.

Land, rolling.
Soil, sandy loam; 1st rate.
Timber, pine, cedar and fir.
Undergrowth, cottonwood and willows.

Chains

From Astronomical Monument No. 7
S. 89° 59' W. on the 215th mile.
Over level valley land.

1.50 Foot of Cemetery Hill, bears N. 42° E., and S. 23° W. Ascend steep E. S. E. slope.

2.50 Old railroad grade, bears N. 30° E. and S. 30 W.

2.59 Intersect a sandstone monument 8 ins. sq. 14 ins. above ground firmly set marked as follows:

Colo. on N. face.
B. on W. face.
1901 on E. face.
N. M. on S. face.

This corner was established by Blair Burwell, surveyor under the direction of Charles A. Johnson, Commissioner for Colorado, who resurveyed this line in the year 1901.

6.70 Top of steep ascent. Thence ascend gradually across the north end of Cemetery Hill.

9.70 Top of Cemetery Hill at north end. Descend a gradual N. N. W. slope.

11.90 Slope changes. Descend steep N. W. slope.

17.41 Wire fence, bears N. E. and S. W. This fence follows [fol. 1079] around the hill.

17.56 Irrigation ditch, 10 lks. wide, bears N. E. and S. W.

17.90 Foot of Cemetery Hill, bears N. 25° E. and S. 31° W. Thence across level meadow land.

20.10 Left bank of creek, 25 lks. wide, bears N. 3° W. and S. 4° W. Thence across creek, course S. 10° W. 10 lks. wide, 6 ins. deep.

37.30 Wire fence bears N. 73° W. and S. 73° E. at edge of meadow. Leave valley and ascend a gradual N. E. slope.

40.00 End of gradual ascent. Enter brush and scattering timber, bears N. W. and S. W. Ascend steep N. E. slope.

48.30 Line of fence posts, bears N. E. and S. W.

50.60 Spur, slopes N. 20° E. Descend on N. W. slope.

53.50 Ravine, course N. 60° E. Ascend E. S. E. slope.

56.56 Find no evidence of the original corner.
At proportionate distance

Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the 215th mile corner with brass cap marked as follows:

From which

A pine, 16 ins. in dia., bears N. 42° 30′ E. 130 lks. dist., marked Dar. 215 M. Colo. B. T.

A pine, 10 ins. dia., bears S. 19° 45′ E. 171 lks dist., marked Dar. 215 M. N. M. B. T.

A pine, 6 ins. in dia., bears S. 28° 15′ W. 201 lks. dist., marked Dar. 215 M. N. M. B. T.

A pine, 14 ins. dia., bears N. 52° 25′ W. 182 lks. dist., marked Dar. 215 M. Colo. B. T.

The N. E. point of a basalt boulder, 12 ins. x 30 ins. at base, sloping to a chisel shaped edge bearing N. E. and S. W. at the top 2 ft. high, bears S. 27° W, 72 lks. dist., not [fol. 1080] marked.

This boulder stands on the south side of a small draw, under a brush pile. There are no other boulders near. Small draw, course E. bears south 50 lks. from the cor. The magnetic declination at this corner is 15° 00′ E.

Land, level and rolling.

Soil, sandy; 2nd rate.

Timber, pine.

Undergrowth, oak.

Chains

S. 89° 59′ W. on the 216th mile.

Ascend steep E. S. E. slope, through dense undergrowth and scattering timber.

3.76 Fall 6 lks. S. of the closing cor. of secs. 9 and 10, New Mexico, T. 32 N., R. 1 W., which is a granite stone, 6″ x 12 x 16 ins. set in a small mound of stone, marked M. C. N. M. on the S. face, C. on the N. face, and having three grooves on the E. and W. faces. From which a dead 10 in. pine bearing tree, bears S. 35° 30′ E. 61 lks. dist.

9.34 Top of steep ascent. Ridge bears N. E. and S. W. sloping N. E.

Chains

Thence over a rolling N. slope.

18.54 Slope changes. Ascend steep E. slope.

34.44 Wire fence, at corner in fence, bears North and S. 20° W.

35.64 Top of ascent on rocky spur, slope S. E. Thence over S. slope.

39.04 Old road, bears N. W. and S. E. Ascend a gradual E. slope.

51.74 Leave dense undergrowth, bears N. and S. Enter a shallow grassy draw, course S. E. Ascend in draw.

53.84 Leave draw, course N. 75° E. and cross a low point of land sloping S.

55.84 Same draw, course S. 60° E. Thence up the draw.

66.74 Deserted log cabin, bears N. 2 chs.

73.94 Small stream, 2 lks. wide, 1 in. deep, course S. E. Leave draw, enter dense undergrowth, bears N. and S. Ascend E. slope.

79.84 Top of ascent on low spur, sloping S. E. Descend along a [fol. 1081] gradual S. W. slope.

82.72 At proportionate distance.

Set an iron post, 3 ft. long, 3 ins. dia. 24 ins. in the ground for the 216th mile cor., with brass cap marked as follows:

From which

A cross on S. face of projecting ledge of basalt, 4 ft. x 3 ft., 1 ft. high, bears N. 18° 30′ W., 23 lks. dist., marked B. O. 216.

Raise a mound of stone, 3 ft. base, 2 ft. high N. of cor.

Stream of water bears South 3 lks.

As this corner stands in marshy ground, I raise a mound of stone, 3 ft. base, 1 ft. high, around the post.

Land, rolling.

Soil, sandy; 2nd rate.

Timber, scattering pine.

Undergrowth, oak.

Chains

S. 89° 30' W. on the 217th mile.
Thence through small valley with dense oak brush.

.10 Stream of water, 1 lk. wide, 1 in. deep, course S. 70° E.

1.92 Leave valley and ascend E. slope.

28.42 Top of ascent, on spur sloping S. E. Thence over a nearly level bench.

29.52 Leave undergrowth, bears N—and S. Enter an open grassy area.

32.02 Wire fence, bears N. and S. Leave bench and enter dense undergrowth. Ascend E. slope and enter scattering timber.

51.72 Top of steep E. slope. Thence across bench.

55.42 Leave timber and undergrowth, bears N. and S. Enter a broken, rough area of rocks.

62.22 Foot of steep slide rock, bears N. E. and S. W. Ascend over [fol. 1082] slide rock.

65.50 The 114.9th mile corner on the Carpenter line bears North 13.68 chs.

66.42 A projecting point of rocks on steep S. S. E. slope at top of slide rock. The south edge of this projection is on line. Enter scattering undergrowth and timber.

76.72 Top of Archuleta Mountain, bears S. 30° W. and N. 30° E. Thence over nearly level top of mountain.

81.00 Begin to descend gradually over a gentle N. W. slope.

82.72 Find no evidence of the original corner.
At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the 217th mile corner, with brass cap marked as follows:

From which

A yellow pine, 16 ins. dia., bears N. 5° 00' E. 108 lks. dist., marked DAR. 217 M. COLO. B. T.
A yellow pine, 30 ins. in dia., bears S. 33° 30' E. 163 lks. dist., marked DAR. 217 M. N. M. B. T.
An aspen 8 ins. dia., bears S. 49° 00' W., 32½ lks. dist., marked DAR. 217 M. N. M. B. T.
A fir, 20 ins. dia., bears N. 65° 30' W., 172 lks. dist., marked DAR. 217 M. COLO. B. T.

Strong local attraction is noticeable on top of Archuleta Mountain at the 217th mile cor.
The magnetic declination at the corner being 14° 45′ E.
Land, mountainous.
Soil, sandy and rocky; 3rd rate.
Timber, pine; aspen and fir.
Undergrowth, oak.

Chains

[fol. 1083] S. 89° 59′ W. on the 218th mile.
Descend a gradual N. W. slope through heavy timber and scattering undergrowth.
26.90 Draw, course S. W. Ascend gradually along S. S. E. slope.
59.50 Top of ascent, on a gradual S. slope. Enter dense undergrowth, bears N. 75° W. and S. 75° E. Descend S. W. slope.
60.80 Leave undergrowth and enter scattering timber, bears N. 30° W. and S. 30° E. Foot of steep descent. Descend a gradual W. slope.
62.90 Draw, course S. Ascend an E. S. E. slope.
68.50 Top of ascent, bears N. and S. Thence over a gentle W. slope.
95.763 At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. dia., 24 ins. in the ground for the 218th mile corner with brass cap marked as follows:

From which

A black jack pine, 20 ins. dia., bears N. 22° 00′ E. 6. lks. dist., marked Dar. 218 M. Colo. B. T.
A black jack pine, 24 ins. in dia., bears S. 56° 00′ E. 28 lks. dist., marked Dar. 218 M. N. M. B. T.
A black jack pine, 24 ins. in dia., bears S. 12° 30′ W. 119 lks. dist. marked Dar. 218 M. N. M. B. T.
A black jack pine, 17 ins. in dia., bears N. 81° 00′ W. 139 lks. dist., marked Dar. 218 M. Colo. B. T.

The magnetic declination at this corner is 15° 20′ E.
Land, mountainous.
Soil, sandy; 3rd rate.
Timber, pine.
Undergrowth, oak.

Chains

[fol. 1084] S. 89° 59′ W. on the 219th mile.
Descend a gradual west slope through scattering timber and undergrowth.
22.44 Draw, course S. 70° W. Ascend S. S. E. slope.
25.24 Low, stony spur, sloping south. Descend S. W. slope.
28.39 The Gannett Monument established at the intersection of the 107th degree meridian, and the 37° Parallel, bears north 10.17 chs.
30.24 Bed of draw, stony bottom, course N. W. 20 lks. to a junction with a draw from the N. E.
32.44 Bed of draw, 5 lks. wide, stony bottom, course S. 30° W. Ascend steep S. E. slope.
35.94 Low ridge, slopes S. 20° W. Descend W. slope.
39.02 The 113th mile corner on the Carpenter line bears north 13.28 chs.
44.34 Draw, course S. About 6 chs. S. is the head of a deep box canyon.
Ascend steep E. slope.
45.94 Low ridge, bears N. 30° E. and S. 30° W. Descend a gradual N. W. slope.
70.54 E. edge of a small box canyon, 3 chs. south of N. end. Thence across canyon.
74.70 W. edge of box canyon. Ascend gradual E. slope.
78.39 Low ridge, bears N. and S. Descend a gradual W. slope.
84.34 Edge of mesa. A wall of perpendicular rimrock 30 ft. high, bears N. and S. Thence descend over slide-rock and across deep canyon.
95.763 Point for the 219th mile corner falls in canyon, in an inaccessible place.
Land, mountainous and mesa.
Soil, sandy and rocky; 3rd rate.
Timber, pine.
Undergrowth, oak.

S. 89° 59′ W. on the 220th mile.
Crossing deep canyon.
17.50 Sharp ridge, slopes S. 10° W.

762

[fol 1085] On this ridge, I set an iron post, 3 ft. long, 3 ins. in dia., 14 ins. in the ground in brittle rock and raise a mound of stone, 4 ft. base, 1½ ft. high around the post for a witness corner to the 219th mile corner with brass cap marked as follows:

From which

A black jack pine, 18 ins. in dia., bears N. 42° 45′ E., 111 lks. dist., marked Dar. 219 M. W. C. Colo. B. T.

A black jack pine, 18 ins. in dia., bears S. 57° 00′ E., 67 lks. dist., marked Dar. 219 M. W. C. N. M. B. T.

A black jack pine, 20 ins. in dia., bears S. 51° 45′ W. 59 lks. dist., marked Dar. 219 M. W. C. N. M. B. T.

A black jack pine, 16 ins. in dia., bears N. 58° 45′ W. 32 lks. dist., marked Dar. 219 M. W. C. Colo. B. T.

Chains	
	The magnetic declination at this corner is 14° 50′ E. Thence descend gradual W. slope through heavy timber and scattering undergrowth.
23.28	Slope changes. Descend steep W. slope.
31.10	Ravine, course S. 30° W. Ascend steep E. S. E. slope.
36.10	Top of ascent, on top of sharp spur ridge, sloping S. 30° W. Descend steep W. slope.
45.30	Canyon, course S. 10° W. Ascend steep E. slope.
49.00	Top of ascent. Thence over level S. slope across S. end of ridge.
56.00	Slope changes. Descend steep W. slope.
66.40	Canyon, course S. Stream of water 3 lks. wide, 3 ins. deep, course S. Ascend S. E. slope.
85.00	Sandstone rimrock bears N. N. W. and S. S. E. Ascend gradually.
92.60	Spur ridge, slopes S. Descend S. W. slope.
95.763	At proportionate distance.

[fol. 1086] Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the 220th mile corner with brass cap marked as follows:

From which

A pine, 8 ins. in dia., bears N. 25° 30′ E., 78 lks. dist., marked Dar. 220 M. Colo. B. T.
A black jack pine, 30 ins. in dia., bears S. 83° 00′ E. 70 lks. dist., marked Dar. 220 M. N. M. B. T.
A yellow pine, 30 ins. in dia., bears S. 35° 30′ W. 85 lks. dist. marked Dar. 220 M. N. M. B. T.
A black jack pine, 20 ins. in dia., bears N. 55° 00′ W. 81 lks. dist., marked Dar. 220 M. Colo. B. T.

The magnetic declination at this corner is 14° 50′ E.
Land, mountainous.
Soil, rocky; 3rd rate.
Timber, pine.
Undergrowth, oak.

Chains

S. 89° 59′ W. on the 221st mile.
Descend steep S. W. slope through heavy undergrowth and scattering timber.
2.25 Bed of a short side canyon, course S. Ascend E. slope.
4.20 Point of sandstone ledge projects south 30 lks.
Descend steep S. W. slope over a sandstone ledge and boulders.
7.75 Bed of canyon, 30 lks. wide, course S. E. Ascend steep N. E. slope.
27.75 Spur ridge, slopes S. E. Descend S. W. slope.
29.75 Draw, course S. 50° E. heads 6 chs. N. W.
[fol. 1087] Ascend steep E. slope.
36.70 High, sharp mountain ridge, bears N. and S.
Descend steep W. slope.
45.42 Bed of canyon, course S. Ascend S. E. slope.
47.47 Cross a low spur, sloping S. Descend S. S. W. slope.

Chains

49.50 Ravine, course S. 60° E. Ascend Steep N. E. slope.
58.77 High mountain ridge, bears N. and S. Descend steep W. slope through exceedingly dense undergrowth.
77.10 Foot of descent. Ascend on N. N. E. slope.
78.70 Spur ridge, slopes N. Descend steep W. slope.
81.30 Short, steep canyon, course N. Ascend steep E. slope.
84.30 Top of spur ridge, slopes N. Descend steep N. W. slope.
90.10 Short steep canyon, course N. Ascend steep E. slope.
92.97 High spur ridge, slopes N. Descend on a N. N. W. slope.
95.763 The proportionate point for the 221st mile corner falls on a high steep slope, in dense undergrowth. A witness corner established in the valley of the canyon to the West will be accessible by trail. I therefore advance the corner.

Land, mountainous.
Soil, rocky; 3rd rate.
Timber, pine.
Undergrowth, oak.

S. 89° 59′ W. on the 222nd mile.
Descend over steep N. N. W. slope through dense undergrowth and scattering timber.

5.00 Slope changes. Descend along the top of a spur ridge sloping W.
10.80 W. end of spur ridge. Descend over sandstone rimrock on a steep N. W. slope.
16.32 Foot of steep N. W. slope bears N. E. and S. W. Thence across valley in bottom of canyon.
17.00 Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the witness cor. to the 221st mile cor. with brass cap marked as follows:

[fol. 1088] From which

A pine, 8 ins. in dia., bears N. 81° 00′ E., 57 lks. dist., marked Dar. 221 M. W. C. Colo. B. T.

A fir, 10 ins. dia., bears S. 73° 00' E., 41 lks. dist., marked Dar. 221 M. W. C. N. M. B. T.
A pine, 12 ins. in dia., bears S. 29° 00' W. 167 lks. dist., marked Dar. 221 M. W. C. N. M. B. T.
A fir, 16 ins. in dia., bears N. 44° 30' W., 50½ lks. dist., marked Dar. 221 M. W. C. Colo. B. T.

Chains

Left bank of stream, bears North 87 lks.
Left bank of same stream, bears West 166 lks.
The magnetic declination at this corner is 15° 00' E.

18.75 Stream, 3 lks. wide, in bottom of canyon, course S. 30° W. Leave valley and ascend steep rugged S. E. slope.

42.75 Top of ascent on high rocky spur ridge, sloping S. Descend steep S. W. slope, through timber.

58.75 Bed of canyon, course S. 10° E. Ascend steep E. slope.

74.00 High ridge, bears N. and S. Descend S. W. slope.

75.95 Draw, course S. 10° E. Heads 2 chs. N. Ascend S. E. slope.

77.70 Mountain ridge, bears N. and S. Descend rolling W. slope.

82.00 Enter heavy pine timber, bears N. and S.

94.75 Ravine, course S. W. Ascend a gradual S. E. slope.

95.763 At proportionate distance
Set an iron post, 3 ft. long 3 ins. in dia., 24 ins. in the ground for the 222nd mile corner with brass cap marked as follows:

[fol. 1089] From which

A black jack pine, 16 ins. in dia., bears N. 3° 30' E., 25 lks. dist., marked Dar. 222 M. Colo. B. T.
A black jack pine, 14 ins. in dia., bears S. 55° 00' E. 37 lks. dist, marked Dar. 222 N. N. M. B. T
A black jack pine, 14 ins. in dia., bears S. 72° 30' W. 34 lks. dist., marked Dar. 222 M. N. M. B. T.
A black jack pine, 16 ins. in dia., bears N. 78° 00' W. 77 lks. dist., marked Dar 222 M Colo. B T.

Bed of ravine, course S. W. bears S. E. 65 lks. dist., to the nearest point, which is 2. chs. above the point where the stream turns to the south.

The magnetic declination at this corner is 14° 50′ E.

Land, mountainous.

Soil, sandy and rocky: 2nd and 3rd rate.

Timber, pine.

Undergrowth, oak.

Chains

S. 89° 59′ W. on the 223rd mile.

Ascend a gradual S. E. slope through heavy timber and low undergrowth.

6.20 Leave timber, bears N. and S. Enter scattering timber.

11.50 Ridge, bears N. E. and S. W. Descend rolling S. W. slope.

47.70 Ravine, course S. W. Thence along steep rolling S. slope.

51.70 Spur ridge, slopes S. Descend W. slope. Enter scattering timber and dense undergrowth.

62.00 Draw, course N. 80° W. Ascend N. N. E. slope.

67.00 Top of ascent. Ridge, bears N. 20° W. and S. 20° E. Descend a gradual W. slope.

81.80 Ravine, course S. 20° W. Ascend S. E. slope.

94.90 Ridge, slopes S. Descend steep W. slope.

95.763 At proportionate distance

[fol. 1090] Set an iron post, 3 ft. long, 3 ins. dia., 16 ins. in the ground to solid rock and raise a mound of stone 4 ft. base, 1½ ft. high around the post for the 223rd mile corner with brass cap marked as follows:

From which

A yellow pine, 24 ins. in dia., bears N. 26° 45′ E., 132 lks. dist., marked Dar. 223 M. Colo. B. T.

A cross on a sandstone boulder 2½ ft. x 6 ft. 1½ ft. high, bears S. 53° E., 60 lks. dist., marked B. O. 223.

A black jack pine, 24 ins. in dia., bears S. 55° 30′ W. 22 lks. dist., marked Dar. 223 M. N. M. B. T.

A yellow pine, 24 ins. in dia., bears N. 4° 40′ W. 151 lks. dist., marked Dar. 223 M. Colo. B. T.

This cor. stands on a steep W. slope about 20 ft. lower than top of ridge.
Magnetic declination at this cor. is 15° 10′ E.
Land, mountainous.
Soil, sandy and rocky; 2nd and 3rd rate.
Timber, pine, pinon and cedar.
Undergrowth, oak.

Chains

S. 89° 59′ W. on the 224th mile.
Descend steep W. slope, through heavy timber and undergrowth.

3.30 Ravine, course S. Ascend steep E. S. E. slope.

10.00 Spur ridge, slopes S. Descend rocky S. W. slope.

21.00 Slope changes. Thence along steep S. slope over broken sandstone ledges and rimrock above the valley of the Navajo River.

28.43 Slope changes. Descend steep rugged S. W. slope over [fol. 1091] sandstone boulders and broken jagged ledges.

38.02 The 107.625th mile corner on the Carpenter line bears North 12.90 chs.

40.28 Mile post 383 on the east side of the D. & R. G. R. R. track bears North 6.19 chs.

41.20 Foot of slope and E. edge of valley, bears N. 18° W. and S. 20° E. Thence across valley.

41.24 Center of D. & R. G. R. R. track on a curve, bears N. 20° W. and S. 25° E.

42.854 At point in valley 166 lks. west of edge of valley, which is the call of the original notes.
Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the restored witness corner with brass cap marked as follows:

From which

A cross on S. W. face of a sandstone boulder, 3 ft. x 5 ft. at base, sloping to sharp edge bearing N. and S. 3 ft. above ground, bears N. 54° 13′ E. 100 lks. dist., marked B. O. W. C.

A black jack pine, 24 ins. in dia., bears S. 48° 50′ E. 100 lks. dist., marked Dar. W. C. N. M. B. T.
A cottonwood, 14 ins. in dia., bears N. 46° 20′ W. 75 lks. dist., marked Dar. W. C. Colo. B. T.

No bearing object or bearing tree available in the S. W. quadrant.
The magnetic declination at this corner is 15° 00′ E.
This witness corner stands in the Navajo River Valley, which is subject to overflow. In order to further preserve the position of this corner, I note the following bearings:

Chains.

[fol. 1092] 1. E. edge of overhanging ledge, facing E. at top of River bluff, bears N. 9° 49′ E. about 1 mile dist. the vertical angle to which is 4° 45′.
2. W. edge of rounded sandstone boulder on steep W. slope, on the east side of the Navajo River, bears N. 20° 51′ E., about 20 chs. dist., the verticle angle to which is 3° 08′.
3. Top point at N. end of rectangular sandstone boulder near foot of steep W. slope, bears S. 71° 31′ E. about 250 lks. dist., the verticle angle to which is 6° 31′.
4. Extreme S. edge of the top of a large flat sandstone boulder, lying on steep E. slope, bears N. 89° 08′ W. about 8 chs. dist., the verticle angle to the top of the boulder, being 10° 27′.
5. E. edge of standstone boulder, on high point facing east, bears N. 19° 01′ W. about 20 chs. dist., the verticle angle to which is 15° 23′.

Thence across valley.

44.80 Right bank of the Navajo River, bears N. 75° W. and S. 75° E.
This bank is washing away.
Thence across the river, course N. 75° W.
46.70 Left bank of the Navajo River, on gravel bar, bears N. 75° W. and S. 75° E. Thence across gravel bar.
47.80 Left bank of river, bears N. 33° W. and S. 80° E.
48.60 Foot of bluff; at west edge of the valley, bears N. and S. Ascend steep E. slope.
58.68 Top of west bluff of the Navajo River, bears N. and S. Descend W. slope through scattering timber and undergrowth.
61.73 Draw, course S. 30° W. Ascend over a gentle S. S. E. slope.
68.00 Top of ascent on low spur sloping S. Descend S. W. slope.
71.23 Draw, course S. E. Ascend N. E. slope.
86.376 At proportionate distance.

Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the 224th mile corner with brass cap marked as follows:

[fol. 1093] From which

A black jack pine, 24 ins. in dia., bears N. 61° 15′ E., 63 lks. dist., marked Dar. 224 M. Colo. B. T.
A yellow pine, 30 ins. in dia., bears S. 6° 30′ E. 160 lks. dist., marked Dar. 224 M. N. M. B. T.
A yellow pine, 24 ins. in dia., bears S. 67° 30′ W. 98 lks. dist., marked Dar. 224 M. N. M. B. T.
A cross on a sandstone boulder 3 ft. x 4 ft. 2 ft. above ground bears N. 11° 05′ W. 63½ lks. dist., marked B. O 224.

The magnetic declination at this corner is 14° 50′ E. From the 224th mile Corner a corner on the N. boundary of the Jicarilla Apache Indian Reservation bears S. 9° 53′ W. 208 lks. dist. This cor. is a sandstone 6 x 16 ins. 12 ins. above ground, firmly set, marked N. M. on S. face, with 6 grooves on the N. E. and W. faces.

Land, mountainous and river bottom.
Soil, rocky and sandy loam; 1st and 3rd rate.
Timber, pine.
Undergrowth, pine.

Chains

S. 89° 59′ W. on the 225th mile.
Ascend gradually over gentle S. E. slope.
1.00 Top of ascent on ridge, sloping S. 30° E. Thence across rolling S. slope, through scattering timber and undergrowth.
9.60 Rocky spur, slopes S. Descend steep S. W. slope.
18.05 Canyon, course S. 30° E. Ascend steep N. E. slope.
25.85 Top of steep ascent. Sandstone ledge bears N. and S. Thence ascend over a very gradual E. slope.

Chains

41.75 Top of ascent on spur sloping S. E. Descend S. W. slope.
44.35 Side draw, course S. E. Ascend steep E. slope, through dense undergrowth.
55.85 Mountain ridge, bears N. 15° E. and S. 15° W. A rocky point on top of this ridge bears South 1 ch. dist. Descend steep W. N. W. slope.
71.05 Canyon, course N. Ascend steep E. N. E. slope.
78.768 At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. dia., 24 ins. in the ground for the 225th mile corner with brass cap marked as follows:

[fol. 1094] From which
A black jack pine, 8 ins. in dia., bears N. 40° 30′ E., 49 lks. dist., marked Dar. 225 M. Colo. B. T.
A black jack pine, 10 ins. in dia., bears S. 58° 45′ E. 102 lks. dist., marked Dar. 225 M. N. M. B. T.
A cross on a sandstone boulder, 2 ft. x 3 ft. 6 ins. above ground, bears S. 44° 50′ W., 47 lks. dist., marked B. O. 225,
A black jack pine, 18 ins. in dia., bears N. 31° 30′ W. 70 lks. dist., marked Dar. 225 M. Colo. B. T.
The magnetic declination at this corner is 15° 00′ E.
Land, mountainous.
Soil, rocky; 3rd rate.
Timber, pine.
Undergrowth, oak.

S. 89° 59′ W. on the 226th mile.
Ascend steep E. N. E. slope through scattering timber and dense undergrowth.
3.78 Top of high ridge, bears N. 20° W. and S. 20° E. Descend steep S. W. slope through scattering timber.
20.70 Canyon, course N. Ascend steep E. slope.
22.50 Low ridge, bears N. and S. sloping N.

Chains

25.10 Center of grassy draw, 70 lks. wide, course N. Ascend steep E. slope.
28.10 Low ridge, slopes N. Descend steep W. slope.
30.10 Draw, course N. Ascend steep E. N. E. slope.
43.10 Top of steep E. slope. Thence across face of N. slope.
49.30 Leave steep N. slope and descend steep W. N. W. slope.
57.10 Ravine, course N. 10° E. Ascend steep E. slope.
66.90 Mountain ridge, bears N. and S. Descend S. W. slope.
74.90 Ravine, course S. W. Enter heavy timber and ascend S.
[fol. 1094] E. slope.
78.50 Spur ridge, slopes S. Descend a gradual S. W. slope.
78.768 At proportionate distance.

Set an iron post, 3 ft. long, 3 ins. in dia., 20 ins. in the ground with a mound of stone 3 ft. base, 16 ins. high built around the post for the 226th mile corner with brass cap marked as follows:

From which

A pinon, 8 ins. in dia., bears N. 52° 00′ E. 42½ lks. dist., marked Dar. 226 M. Colo. B. T.
A pinon, 10 ins. dia., bears S. 17° 30′ E. 13 lks. dist., marked Dar. 226 M. N. M. B. T.
A pinon, 8 ins. in dia., bears S. 71° 45′ W. 20 lks. dist., marked Dar. 226 M. N. M. B. T.
A cedar, 16 ins. dia., bears N. 30° 00′ W. 13 lks. dist., marked Dar. 226 M. N. M. B. T.

The magnetic declination at this corner is 14° 50′ E.
Land, mountainous.
Soil, rocky; 3rd rate.
Timber, cedar and pinon.
Undergrowth, oak.

Chains

S. 89° 59′ W. on the 227th mile.
Descend a gradual S. W. slope through heavy timber and undergrowth.

.90 Slope changes. Descend steep N. W. slope.

3.51 Ravine, course S. W. Ascend gradually over broken S slope.

9.20 Slope changes. Descend a gradual S. W. slope. Enter dense undergrowth and leave timber.

14.50 Foot of S. W. slope, bears N. 20° W. and S. 20° E. Thence along N. edge of valley.

21.50 Leave valley, bears N. 75° E. and S. 75° W. and ascend [fol. 1096] over a gradual S. S. E. slope through dense undergrowth.

41.10 Ravine and small stream of water 3 lks. wide, course N. 70° W. Thence down the valley on S. side of stream.

45.80 Same stream, 3 lks. wide, course S. 70° W.

48.30 Same stream, 3 lks. wide, course N. E. at W. end of bend. Thence over level valley on S. side of stream.

56.30 Leave valley, bears N. W. and S. E. Ascend N. E. slope.

78.768 Near top of slope at proportionate distance.
Set an iron post, 3 ft: lone, 3 ins. in dia., 24 ins. in the ground for the 227th mile cor., with brass cap marked as follows:

From which

A pinon, 12 ins. in dia., bears N. 10° 00′ E. 39 lks dist., marked Dar. 227 M. Colo. B. T.

A black jack pine, 16 ins. in dia., bears S. 5° 00′ E. 59 lks. dist., marked Dar. 227 M. N. M. Bt.

A yellow pine, 24 ins. in dia., bears S. 52° 30′ W. 176 lks. dist., marked Dar. 227 M. N. M. Bt.

A black jack pine, 14 ins. in dia., bears N. 57° 10′ W. 78 lks. dist., marked Dar. 227 M. Colo. B. T.

This corner stands on the E. side of the top of a spur ridge, facing North.

The magnetic declination at this corner is 14° 50′ E.

Land, valley.
Soil, sandy loam; 1st and 2nd rate.
Timber, pine, pinon and cedar.
Undergrowth, dense oak.

Chains

S. 89° 59′ W. on the 228th mile.
Ascend gradually through scattering timber and under-
[fol. 1097] undergrowth.
1.20 Top of ascent on spur facing N. Descend a gradual W. N. W. slope.
10.25 Draw, course N. 20° W. Ascend N. E. slope.
17.75 Mountain ridge, bears N. 20° W. and S. 20° E. Descend S. W. slope.
31.95 Ravine, course S. 30° W. Ascend S. E. slope. Enter dense timber.
35.95 Top of ascent, on spur ridge, sloping S. W. Descend steep W. slope.
46.25 Leave dense timber and enter scattering undergrowth.
62.80 Foot of descent, at east edge of valley, bears N. and S. Thence across valley.
64.95 E. edge of arroyo, 40 lks. wide, 10 ft. deep, course N.
66.15 Leave valley. Enter scattering timber and dense undergrowth.
Ascend N. E. slope.
71.50 Top of ascent. Thence over steep N. slope.
78.768 At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. dia., 24 ins. in the ground for the 228th mile corner with brass cap marked as follows:

From which

A yellow pine, 21 ins. in dia., bears N. 5° 00′ E. 62 lks. dist., marked Dar. 228 M. Colo. B. T.
A black jack pine, 12 ins. in dia., bears S. 71° 30′ E. 103 lks. dist., marked Dar. 228 M. N. M. B. T.

B A cross on a standstone boulder 4 ft. x 8 ft. 2 ft. above ground, bears S. 63° 30' W., 45 lks. dist., marked B. C. 228. The cross is at the S. end of the boulder.

[fol. 1698] A yellow pine, 24 ins. in dia., bears N. 34° 00' W., 14 lks. dist., marked Dar. 228 M. Colo. B. T.

The magnetic declination at this corner is 14° 45' E. This corner stands on a steep N. slope in dense undergrowth about 2 chs. south of a ravine, the course of which is E.

Land, mountainous.
Soil, rocky; 3rd rate.
Timber, pine, cedar and pinon.
Undergrowth.

Chains	
	S. 89° 59' W. on the 229th mile.
	Along steep N. slope through scattering timber and dense undergrowth.
4.00	Ravine, course N. 70° E. Ascend steep E. slope.
5.20	Top of ascent, bears N. and S. Thence across bench.
21.80	Leave bench, bears N. N. W. and S. S. E. Ascend E. slope through timber.
29.00	Top of ascent. Thence along a gradual N. slope.
39.00	Slope changes. Ascend a gradual N. E. slope. Enter dense timber.
42.00	Top of ascent, bears N. 70° W. and S. 70° E. Thence across top of mountain range.
51.40	Leave top of ridge, bears N. W. and S. E. Descend steep S. W. slope.
58.00	Foot of steep descent, bears N. W. and S. E. Thence across bench, descending a gradual W. slope.
74.77	At west edge of bench at top of steep descent into ravine. Set an iron post, 3 ft. long, 3 ins. in dia., 22 ins. in the ground to solid rock and raise a mound of stone 3 ft. base, 1 ft. high around the post for the witness corner to the 229th mile corner with brass cap marked as follows:

Chains

[fol. 1099] From which

A cross on a sandstone boulder 6 ft. x 8 ft. 2 ft. above ground, bears N. 47° 30' E., 10 lks. dist., marked B. D. 229 W. C.

A cedar, 7 ins. dia., bears S. 73° 30' E. 12 lks. dist., marked Dar. 229 M. W. C. N. M. B. T.

A cedar, 10 ins. in dia., bears S. 44° 00' W. 18 lks. dist., marked Dar. 229 M. W. C. N. M. B. T.

A pinon, 10 in. dia., bears N. 1° 45' W., 51 lks. dist., marked Dar. 229 M. W. C. Colo. B. T.

The magnetic declination at this cor. is 14° 50' E.

Thence descend steep W. slope through heavy timber and dense undergrowth.

78.768 The 229th mile point by proportion falls within 50 lks. of the bed of ravine, on a steep bank, where it would not be easily accessible.

Land, mountainous and level mesa.
Soil, sandy; 2nd and 3rd rate.
Timber, pinon and cedar.
Undergrowth, oak.

S. 89° 59' W. on the 230th mile.

Descend steep W. slope.

.50 Ravine, course S. W. Ascend steep S. E. slope through scattering timber and undergrowth.

4.40 Top of ascent, on spur sloping S. Thence across a broken rugged S. slope.

9.80 Ridge, slopes S. 30° W. Descend on W. slope.

23.50 Foot of Steep W. slope in bed of ravine, course N. W. Thence descend gradually across valley.

33.60 Leave valley bears N. 60° W. and S. 60° E. Ascend steep N. E. slope.

41.90 Top of ascent, on spur ridge, sloping N. Thence along steep N. slope.

51.20 Slope changes. Descend steep N. W. slope.

56.20 Foot of slope, in ravine, course N. 30° W. Thence descend gradually in valley on S. side of stream.

67.70 Leave valley bears N. W. and S. E. Ascend steep N. E. slope.

Chains

78.76 At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. dia., 24 ins. in the [fol. 1100] ground for the 230th mile corner with brass cap marked as follows:

From which

A pinon, 8 ins. in dia., bears N. 20° 45′ E. 46 lks. dist., marked Dar. 230 M. Colo. B. T.
A pinon, 6 ins. dia., bears S. 76° 50′ E. 97 lks. dist., marked Dar. 230 M. N. M. B. T.
A pinon, 6 ins. dia., bears S. 23° 00′ W. 43 lks. dist., marked Dar. 230 M. N. M. B. T.
A pinon, 10 ins. dia., bears N. 9° 40′ W. 58 lks. dist., marked Dar. 230 M. Colo. B. T.
Land, rolling and mountainous.
Soil, sandy; 2nd and 3rd rate.
Timber, pinon and cedar.
Undergrowth, oak.

S. 89° 59′ W. on the 231st mile.
Ascend steep N. E. slope through dense undergrowth and timber.
4.50 Spur slopes S. E. Ascend on a steep S. E. slope.
9.45 Top of ascent on spur ridge sloping N. E. Thence across N. slope.
11.50 Cone shaped peak, bears S. 20 lks. Descend steep W. slope.
25.25 Ravine, course N. 30° W. Ascend on steep N. N. E. slope.
29.50 Slope changes. Thence over N. slope.
33.35 Leave timber. Slope changes. Descend steep N. N. W. slope covered with sage brush.

Chains

41.39 The 100th mile corner on the Carpenter line bears North 11.86 chs.

47.45 Foot of slope at east edge of San Juan River Valley, bears N. 50° E. and S. 50° W. Leave sage brush.

[fol. 1101] Thence across level open grassy valley.

52.85 Right bank of arroyo, 8 ft. deep, course N. 10° E.

54.55 Left of arroyo, bears N. and S.

64.75 Road, N. W. and S. E.

65.45 Wire fence, bears N. W. and S. E.

67.65 Old river bank, 10 ft. high, bears N. and S. fringed with willows and cottonwoods. From foot of bank thence across level gravel bar.

78.768 At proportionate distance

Set an iron post, 3 ft. long, 3 ins. dia., 24 ins. in the ground for the 231st mile corner with brass cap marked as follows:

From which

A cottonwood, 12 ins. in dia. bears N. 10° 30′ E. 182 lks. dist., marked Dar. 231 M. Colo. B. T.

A cottonwood, 10 ins. in dia., bears S. 42° 45′ W. 159 lks. dist., marked Dar. 231 M. N. M. B. T.

A cottonwood, 10 ins. in dia., bears N. 16° 00′ W. 85 lks. dist., marked Dar. 231 M. Colo. B. T.

No bearing tree available in the S. E. quadrant.

The extreme E. edge of a sandstone ledge above the D. & R. G. R. R. track bears N. 42° 01′ E. about ½ mile dist., the verticle angle to which is 1° 11′.

A straight cedar tree on S. side of top of cone shaped peak bears S. 89° 38′ E. about 1 mile dist., the verticle angle to which is 5° 23′.

A pinon, on ridge, bears S. 49° 06′ E. about ½ mile dist., the verticle angle to which is 6° 30′.

The San Juan River is about 8 chs. N. of this corner.

[fol. 1102] Land, mountainous and level.
Soil, sandy; 1st and 2nd rate.
Undergrowth, willows, oak and sagebrush.
Timber, cedar, pinon and cottonwood.

Chains	
	S. 89° 59′ W. on the 232nd mile.
	Over gravel bar, through timber and undergrowth.
8.57	Leave timber and undergrowth, bears N. E. and S. W.
	Thence over sand bar on S. side of the San Juan River.
21.00	Leave sand bar bears N. W and S. E. Ascend steep river bank, 20 ft. high.
21.70	Top of river bank, bears N. W. and S. E. Thence over gently rolling sage brush flat.
27.70	Adobe house bears N. 2.30 chs.
31.30	Road, bears N. W. and S. E.
34.80	Right bank of ravine, bears N. 30° W and S 30° E. Enter dense undergrowth and scattering timber. Thence across ravine, course N. W.
37.70	Left bank of ravine, bears N. and S. E. Thence over rolling bench.
37.89	Wire fence bears N. and S.
40.00	Leave dense oak brush and timber, bears N. E. and S. W. Thence across open area, near house.
41.52	S. end of frame and adobe house, 10 lks. east of S. W. cor. of house, owned by Jose Sandoval.
42.00	Old river bank bears N. 25° E. and 25° W. Thence across cultivated valley.
51.30	Wire fence at edge of cultivated land, bears N. 30° E. and S. 30° W. Enter dense undergrowth.
56.00	Leave valley land, bears N. 30° W. and S 30° E. Thence across gravel and sand bar.
60.00	Water edge on left bank of San Juan River.
	Thence across river, course S. 30° E.
61.00	Right bank of San Juan River, 6 ft high, bears N. N. W. and S. S. E.
	Thence across level valley, through an exceedingly dense undergrowth.
77.01	Wire fence bears N. and S.
78.768	Find no evidence of the original corner.

[fol. 1103] At proportionate distance.

Set an iron post, 5 ft. long, 3 ins. in dia. 24 ins. in the ground for the 232nd mile corner with brass cap marked as follows:

From which

A cottonwood, 10 ins. in dia., bears N. 53° 30′ E. 40 lks dist., marked Dar. 232 M. Colo. B. T.

A cottonwood, 8 ins. in dia., bears S. 71° 00′ E. 71 lks. dist., marked Dar. 232 M. N. M. B. T.

A cottonwood, 6 ins. in dia., bears S. 69° 00′ W. 36 lks. dist., marked Dar. 232 M. N. M. B. T.

A cottonwood, 6 ins. in dia., bears N. 43° 40′ W. 95 lks. dist., marked Dar. 232 M. Colo. B. T.

The magnetic declination at this corner is 14° 45′ E.

Land, valley.

Soil, sandy; 1st to 2nd rate.

Timber, cottonwood.

Undergrowth, willows, and oak, with sage brush.

Chains

S. 89° 59′ W. on the 233rd mile.

Over level valley land, through dense undergrowth and over piles of drift wood.

5.80 Dim road, bears N. and S.

7.25 Fence corner on line, from which wire fences bear, one North and one West.

11.50 Right bank of the San Juan River 4 ft. high, bears N. 60° W. and S. 60° E. Thence across river, course N. 60° W.

14.10 Edge of water, on left shore of the San Juan River. Thence across gravel and sand bar.

30.50 Leave gravel and sand bar, also river bed, which bears [fol. 1104] N. 40° W. and S. 40° E. Ascend steep bank 20 ft. high.

31.30 Top of bank, bears N. 40° W. and S. 40° E. Thence across nearly level bench.

Chains

34.00 Adobe house of Roque Gallegos, bears S. 2 chs.
36.30 Wagon road, bears N. W. and S. E.
38.90 Leave bench, bears N. W. and S. E. Ascend steep N. E. slope through dense undergrowth.
51.80 Spur slopes N. Enter scattering timber. Descend steep N. W. slope.
56.40 Ravine, course N. 20° E. Ascend steep E. slope.
60.60 Spur slopes North. Descend N. W. slope.
62.20 Small ravine, course N. Ascend a gradual N. E. slope.
64.80 Spur, slopes N. Thence over rolling N. slope.
69.70 Slope changes. Descend steep rocky N. W. slope.
73.00 Bed of canyon, course N. Ascend steep rocky S. E. slope.
78.768 Find no evidence of the original corner.
At proportionate distance.
Set an iron post 3 ft. long, 3 ins. in dia.; 24 ins. in the ground for the 233rd mile corner with brass cap marked as follows:

From which

A black jack pine, 12 ins. in diam., bears N. 31° 55′ E. 131 lks. dist., marked Dar. 233 M. Colo. B. T.
A cedar, 8 ins. in dia., bears S. 45° 30′ E. 62 lks. dist., marked Dar. 233 M. N. M. B. T.
A cross at N. W. Cor. of a sandstone boulder, 6 ft. x 12 ft. 1 ft. high, bears S. 12° 00′ W. 11 lks. dist., marked B. O. 233.
A yellow pine, 26 ins. in dia., bears N. 56° 05′ W. 88 lks. dist., marked Dar. 233 M. Colo. B. T.
[fol. 1105] A cross on a sandstone boulder 3 ft. x 3 ft., 2 ft. high, bears N. 82° 40′ E. 41 lks. dist., marked B. O. 233.

The magnetic declination at this corner is 14° 45′ E.
Land, mountainous and valley.
Soil, sandy; 1st and 2nd rate.
Timber, pine, pinon and cedar.
Undergrowth, oak.

Chains.

S. 89° 59′ W. on the 234th mile.

Ascend steep rocky E. slope through dense undergrowth and timber.

5.00 Top of ascent. Thence across rolling N. slope.

11.14 Draw, course N. Ascend a gradual N. E. slope.

21.50 Leave timber and dense undergrowth, bears N. W. and S. E. Ascend gradually over bench land, through scattering timber and undergrowth.

22.45 Top of ascent. Thence over level bench land.

34.40 Leave bench, bears N. W. and S. E. Ascend steep N. E. slope.

41.50 Top of ascent on spur, sloping N. Descend N. W. slope.

43.15 Side draw, course N. 30° W. Ascend N. E. slope.

53.14 High spur, slopes N. Descend steep N. W. slope. Enter dense undergrowth.

55.15 Projecting point of sandstone ledge, 8 ft. high. This ledge bears N. 40° E. Descend very steep W. slope through dense timber.

71.06 Bed of canyon, course N. Thence ascend N. E. slope.

75.95 Side draw, course N. 60° E. Continue ascent.

78.768 At proportionate distance

Set an iron post, 3 ft. long, 3 ins. in dia., 20 ins. in the ground and raise a mound of stone, 4 ft. base, 1½ ft. high around the post for the 234th mile corner with brass cap marked as follows:

[fol. 1106] From which

A cross on a sandstone boulder, 4 ft. x 10 ft. 3 ft. high, bears N. 28° 45′ E., 43 lks. dist., marked B. O. 234. The cross is 1½ ft. from W. end of boulder.

A cedar, 6 ins. in dia., bears S. 28° 00′ E. 23 lks. dist., marked Dar. 234 M. N. M. B. T.

A cedar, 16 ins. in dia., bears S. 32° 00′ W. 16 lks. dist., marked Dar. 234 M. N. M. B. T.

A cross on a sandstone boulder 8 ft. x 8 ft. 5 ft. high, bears N. 29° 20′ W. 15 lks. dist., marked B. O. 234. The marks on the E. face of the boulder.
A side draw, course E. N. E. bears S. 90 lks.
The magnetic declination at this corner is 14° 45′ E.
Land, mountainous.
Soil, sandy; 2nd and 3rd rate.
Timber, cedar and pinon.
Undergrowth, oak, cottonwood and willow.

Chains

S. 89° 59′ W. on the 235th mile.
Ascend steep E. slope through dense timber and undergrowth, over sandstone boulders and broken ledges.
10.00 Top of ascent, bears N. and S. Thence over bench.
22.30 Leave bench, bears N. E. and S. W. Descend steep N. W. slope.
28.30 Ravine, course N. 50° W. Ascend steep N. N. E. slope.
32.10 Slope changes. Ascend over rolling N. slope.
41.90 Ridge, bears N. and S. Saddle in ridge, bears N. 60 lks. and north of the saddle is a low rounded point. Thence ascend over a rolling N. slope. Leave timber.
53.50 Top of ascent on steep N. slope. Thence descend steep N. W. slope.
62.50 Ravine, course N. Ascent steep N. E. slope. Enter scattering timber.
78.768 Point for cor.
Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the 235th mile corner with brass cap marked as follows:

[fol. 1107] From which

A cross on N. W. face of sandstone boulder 6 ft. x 8 ft. 6 ft. high bears S. 45° E. 9 lks. dist., marked B. O. 235. This is the boulder described in the original notes at this corner.

A yellow pine, 20 ins. in dia. bears N. 66° 45′ E. 48 lks. dist., marked Dar. 235 M. Colo. B. T.
A yellow pine, 24 ins. in dia., bears S. 11° 50′ E. 155 lks. dist., marked Dar. 235 M. N. M. B. T.
A yellow pine, 18 ins. in dia., bears S. 70° 00′ W. 32 lks. dist., marked Dar. 235 M. N. M. B. T.
A yellow pine, 16 ins. in dia., bears N. 11° 00′ W. 144 lks. dist., marked Dar. 235 M. Colo. B. T.

The magnetic declination at this corner is 14° 45′ E.
The position of the 235th mile corner as restored is fully supported by the large sandstone boulder, which I have marked as a bearing object, and by the topography east of this corner and by the distance to Astronomical Monument No. 8. I therefore consider this corner properly restored in its original position.

Land, mountainous.
Soil, sandy; 3rd rate.
Timber, pine, pinon and cedar.
Undergrowth, oak.

Chains

N. 89° 52′ W. on the 236th mile.
Thence across N. slope through heavy timber and scattering undergrowth.

4.30 Leave bench, bears N. N. E. and S. S. W. Descend steep W. N. W. slope.

10.10 Ravine, course N. Thence across steep N. slope, through dense undergrowth.

12.30 Small spur, slopes N. Continue along steep rolling N. [fol. 1108]

30.50 Ravine, course N. 60° E. Ascend steep E. slope.

47.70 Top of ascent, on a high rocky point at E. end of mesa. Thence along top of low ridge, bearing W. from this point.

61.40 Draw, course S. E. Enter timber, bears N. and S. Undergrowth becomes scattering. Ascend in valley.

79.46 At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. dia., 24 ins. in the ground for the 236th mile corner with brass cap marked as follows:

From which

A black jack pine, 18 ins. in dia., bears N. 51° 30′ E. 39 lks. dist., marked Dar. 236 M. Colo. Bt.
A black jack pine, 14 ins. in dia., bears S. 52° 30′ E. 23 lks. dist., marked Dar. 236 M. N. M. Bt.
A black jack pine, 20 ins. in dia., bears S. 52° 45′ W. 72 lks. dist., marked Dar. 236 M. N. M. Bt.
A black jack pine, 16 ins. in dia., bears N. 72° 00′ W. 47 lks. dist., marked Dar. 236 M. Colo. Bt.
Bed of a small wash, course S. 75° E. bears S. 49 lks.

The magnetic declination at this corner is 15° 00′ E.

Land, mountainous.
Soil, sandy; 2nd rate.
Timber, pine.
Undergrowth, oak.

Chains

N. 89° 52′ W. on the 237th mile.
Ascend gradually on N. E. slope through heavy timber and scattering undergrowth.

34.50 Top of ascent. Ridge bears S. 60° E. and West.
Thence along top of ridge.
[fol. 1109]

46.50 West edge of ridge, bears N. and S. Leave ridge, and descend gradual W. slope. The edge of the mesa is 3 chs. N. at this point.

74.60 Draw, 1 ch. wide at bottom, course S. 20° E. Earth dam and pond of water, 1 ch. in dia., bears S. 250 lks dist.,
Ascend gradually across valley of draw.

79.46 At proportionate distance
Set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the 237th mile corner with brass cap marked as follows:

From which

A yellow pine, 18 ins. in dia. bears S. 41° 45′ E. 136 lks. dist., marked Dar. 237 M. N. M. Bt.
A yellow pine, 16 ins. in dia., bears S. 80° 00′ W. 29½ lks. dist., marked Dar. 237 M. N. M. Bt.
A yellow pine, 16 ins. in dia., bears N. 52° 40′ W. 139 lks. dist., marked Dar. 237 M. Colo. Bt.

No bearing tree available in the N. E. quadrant.
Build mound of stone 3 ft. base, 2 ft. high N. of cor.
Land, mountainous.
Soil, sandy; 2nd and 3rd rate.
Timber, pine.
Undergrowth, oak.

Chains

N. 89° 52′ W. on the 238th mile.
Enter scattering timber and ascend E. slope.
8.20 A black jack pine, 10 ins. in dia., marked with a large cross cut in the bark on the S. E. face, bears S. 40 lks. Slope changes. Thence over nearly level bench.
[fol. 1110]
23.80 Low ridge, bears N. and S. The edge of the mesa S. 3 chs. N. Enter dense timber. Descend W. Slope.
45.00 Leave timber and undergrowth, bears N. W. and S. E.
47.10 Center of draw, 50 lks. wide on the bottom, course S. 20° W. Ascend a gradual S. E. slope.
52.00 Enter dense timber and scattering undergrowth, bears N. E. and S. W. Ascend steep S. E. slope.
65.80 Top of ascent on ridge, bearing N. and S. The edge of the mesa bears N. 150 lks. Descend a S. W. slope.
79.46 At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. dia., 24 ins. in the ground for the 238th mile corner with brass cap marked as follows:

From which

A pinon, 12 ins. in dia., bears N. 86° 00' E. 14 lks. dist., marked Dar. 238 M. Colo. Bt.
A pinon, 14 ins. in dia., bears S. 43° 00' E. 79 lks. dist., marked Dar. 238 M. N. M. Bt.
A pinon, 8 ins. dia., bears S. 62° 30' W. 42 lks. dist., marked Dar. 238 M. N. M. Bt.
A pinon, 10 ins. dia., bears N. 79° 30' W. 42 lks. dist., marked Dar. 238 M. Colo. Bt.
Land, mountainous.
Soil, sandy; 2nd rate.
Timber, pine, pinon and cedar.
Undergrowth, oak.

Chains

N. 89° 52' W. on the 239th mile.
Descend a gradual W. slope through heavy timber and scattering undergrowth.

12.10 Rimrock at west edge of mesa, bears N. E. and S. W.

[fol. 1111] Descend steep rugged N. W. slope, through dense timber.

41.50 Bed of ravine, at foot of steep descent, course N. W.
Enter scattering timber. Ascend N. E. slope.

45.10 Spur slopes N. Descend over a steep rolling N. slope.

55.70 Leave N. slope. Descend over steep N. W. slope.

61.20 Ravine, course N. W. Ascend E. slope.

63.40 Spur slopes N. W. Descend N. W. slope.

70.60 Bed of steep canyon, course N. E. Ascend steep E. S. E. slope.

79.46 As proportionate point for the 239th mile corner falls on a steep barren earth bank, where it is impossible to establish corner securely, I advance the corner to a spur ridge.
2.40 chs. to the West.
Land, mountainous.
Soil, sandy; 2nd and 3rd rate.
Timber, pinon and cedar.
Undergrowth, oak.

N. 89° 52' W. on the 240th mile.
Ascend steep N. E. slope through dense brush.

2.40 Spur ridge, slopes N. At this point I set an iron post 3 ft. long, 3 ins. in dia., 24 ins. in the ground for the Witness Corner to the 239th mile corner with brass cap marked as follows:

From which

A cross cut on a sandstone boulder 3 ft. x 3 ft. 2 ft high, bears S. 6° 10′ W. 19 lks. dist., marked B. O

A cross cut on a sandstone boulder, 4 ft. x 8 ft. 3 ft h'gh, bears S. 85° 20′ W. 32 lks. dist., marked B. O.

A cedar, 6 ins. in dia., bears N. 18° 10′ W. 106 lks. dist., marked Dar. 239 M. W. C. Cofo. Bt.

In addition to which I note the following bearings

Chains

[fol. 112] S. W. corner of stone monument at W. end of railroad bridge over the Rio Piedra at Arboles, Colo., bears N. 31° 09′ W. about ¾ mile.

A mound of stone on a mountain peak bears N. 42° 58′ E. 10 miles dist.

Highest point on sandstone boulder, on ridge bears N. 70° 21′ E. about 1 mile dist., the vertical angle to which is 1° 56′.

Thence descend steep N. W. slope, through dense timber and undergrowth.

9.70 Ravine, course N. Ascend N. E. slope.

13.95 High sharp ridge, sloping N. The west side of this ridge is a barren earth slide at the top, below which are broken ledges, large boulders and deep washes.

Descend over N. W. slope.

53.60 Ravine, at foot of slope, course N. 75° W. Thence descend in valley, on S. side of wash.

60.65 Arroyo, 30 lks. wide, course N. 10° W. Ascend N. E. slope over a low point.

61.40 Wire fence, bears N. 5° W. to a fence cor. 40 lks. N. From which corner the fence bears West.

65.10 Low spur, slopes N. W. 30 lks. to N. toe of slope.

Descend gradual N. W. slope.

66.55 Foot of slope at east edge of the San Juan Valley, bears N. 10° E. and S. 10° W. Leave timber. Thence descend gradually across smooth valley land covered with sage-brush

Chains

79.46 Find no evidence of the original corner.
At proportionate distance.
Set an iron post, 3 ft. long, 3 ins. dia., 24 ins. in the ground for the 240th mile corner with brass cap marked as follows:

[fol. 1113] The 240th mile corner falls at edge of wash, where pits would be impracticable and there are no stones for a mound of stone. I therefore note the following bearings:

West edge of boulder on ridge bears N. 41° 34′ E. about ½ mile dist., the verticle angle to which is 3° 53′.

A perpendicular ledge facing north near top of mountain bears S. 85° 26′ E., ½ mile dist., the verticle angle to which is 12° 32′.

Highest point on top of large sandstone boulder, at E. edge of valley bears S. 50° 49′ E. about 20 chs. dist., the verticle angle to which is 4° 41′.

Extreme W. edge of sandstone boulder on top of spur ridge bears S. 18° 37′ W. about 30 chs. dist., the verticle angle to which is 3° 44′.

S. end of pole-and-adobe house, bears S. 89° 28′ W. ½ mile dist.

E. edge of steel cylinder pier, under S. E. end of highway bridge over the San Juan River, bears N. 21° 18′ W. about 30 chs. dist.

Land, mountainous and level.
Soil, sandy and sandy loam; 1st to 2nd rate.
Timber, cedar and pinon.
Undergrowth, oak.

N. 89° 52′ W. on the 241st mile.
Descend gradually across the San Juan River Valley.

21.90 Wire fence, bears N. and S. Thence across road. Rosa, N. M. bears south about ½ mile.

Chains

22.58 E. end of frame building at N. E. cor. bears south 30 lks. Thence across cultivated land.

38.00 Leave cultivated land. Old irrigation ditch now dry, bears N. 30° E. and S. 30° W. Foot of descent. Thence across level valley.

41.30 W. wall of adobe house on line. The N. W. cor. of this house is 25 lks. N. of line.

41.72 Wire fence, bears N. and S.

47.26 The 90th mile corner on the Carpenter line bears North 8.88 chs.

63.40 Wire fence, bears N. and S.

64.70 Road, bears N. E. and S. W.

66.30 Road, bears N. E. and S. W.

67.03 Center of irrigation ditch, course S. 30° W. 5 lks. wide.

[fol. 1114]

69.60 Wire fence, bears N. and S.

74.02 Wire fence, bears N. 10° E. and S. 10° W. at edge of valley on bank of the San Juan River. Thence across gravel bar.

74.95 Water edge, bears N. 30° E. and S. 30° W. on left bank of San Juan River. Thence across river, course S. 30° W.

77.50 Water edge at right bank of San Juan River, bears N. 30° E. and S. 30° W. Ascend steep bluff.

79.46 The point by proportion for the 241st mile corner falls on bluff. Impossible to establish corner here.

Land, level and steep bluff
Soil, rich loam; 1st rate.
Timber, none.
Undergrowth, none.

N. 89° 52' W. on the 242nd mile.
Ascend steep gravel bank.

1.60 Top of gravel bank on a spur, sloping S. At this point I set an iron post, 3 ft. long, 3 ins. in dia., 24 ins. in the ground for a Witness Corner to the 241st mile corner with brass cap marked as follows:

From which

A pinon, 10 ins. dia., bears N. 54° 15′ E., 69 lks. dist., marked DAR 241 M WC COLO BT.

A cedar, 16 ins. in dia., bears N. 74° 18′ W., 114 lks. dist., marked DAR 241 M WC COLO BT.

A small bushy cedar, 2 ins. in dia., too bushy to be marked bears N. 47° E. 10½ lks. dist.

A granite stone 6 x 10 ins. 8 ins. above ground set in a small mound of stone at top of spur bears N. 6° 20′ E. 28 lks. dist., and is marked SD19.

No bearing trees are available south of the line.

[fol. 1115] To further preserve the location of this corner, I note the following bearings:

Perpendicular ledge, facing N. at top of mountain bears S. 87° 58′ E. about 1½ miles dist.

N. E. Cor. of adobe church at Rosa, N. M. bears S. 42° 16′ E. about 1 mile dist.

Lone cedar tree on peak bears S. 0° 15′ W. about 4 miles dist.

E. edge of overhanging ledge on E. side of top of a small peak, bears S. 26° 36′ W. about 6 miles dist.

This Witness Corner stands on S. slope about 10 ft. below top of bank.

Thence descend steep S. W. slope.

Chains	
3.50	Ravine, course S. E. Ascend steep N. E. slope.
4.95	Top of bank, bears N. N. W. and S. S. E. Thence ascend gradually over bench land.
8.44	Evidence of an old Indian Trail, bears N. N. E. and S. S. W. at top of ascent. Thence descend gradually over N. W. slope.
12.40	Fence cor. bears N. 12 lks. from which one fence bears North and one East.
14.00	Top of bank, bears N. and S. Leave bench land. Descend N. W. slope.
16.25	Ravine, course S. W. Ascend S. E. slope.
17.75	Top of ascent on spur sloping S. W. Descend W. S. W. slope.
21.55	Intersect the 8th Astronomical Monument which is a nearly rectangular shaft of sandstone 9 x 11 ins. at the base and sloping to 5 x 8 ins. at the top, extending 40 ins. above ground firmly set with a mound of stone, 6 ft. base 2 ft. high, around the base of the corner stone, marked

COLORADO on the N. face.

NEW MEXICO on the S. face.

1868 on the E. face.

37° N. L. on the W. face.

From which

Conical peak, bears N. 12° 51′ W. about 8 miles dist.
Conical peak with lone tree on top, bears S. 4° 25′ E. about 4 miles dist.
Timbered peak bears S. 2° 35′ W. about 4 miles dist.
[fol. 1116] Point of timbered ridge, bears S. 12° 22′ W. about 7 miles dist.
The San Juan Valley (indefinite) bears S. 9° 45′ W. about ½ miles dist.

The objects observed in these bearings are the objects observed in the original survey. From the bearing observed and from the position of the corner, I am convinced that this is the original corner monument and that it is standing in its original position.

As there are no bearing trees or bearing objects near the 8th Astronomical Monument I note the following topography west, and south of the Monument to aid in preserving its location.

West from Astronomical Monument No. 8:
0.90 Old Road, bears N. N. W. and S. S. E.
3.35 Left bank of ravine 4 ft. high bears N. N. E. and S. S. W.
3.65 Stream in ravine 3 lks. wide, course S. 60 W. just north of point where the stream turns to the south.

South from Astronomical Monument No. 8:
1.56 Old road, bears S. 70° E. and N. 30 W.
2.74 Center of stream, 2 lks. wide, course E. S. E.
Land, level and broken.
Soil, sandy; 2nd rate.
Timber, pinon and cedar.
Undergrowth, none.

Accuracy of this Restoration Survey

As this resurvey and restoration was made with only one set of chainmen great care was exercised to obtain correct *results;* to demonstrate the accuracy of which the following table is submitted, giving a comparison of the chaining by the Carpenter line and by the restored Darling line:

[fol. 1117]

Carpenter's corners	Point on restored Darling line opposite Carpenter's cor.		Departure between Carpenter cors.				Difference in lat. between Carpenter and Darling line, chs.
			By the Carpenter line		By the restored Darling line		
	Mile cor.	Chs: west	Miles	Chs.	Miles	Chs	
125 M.	206 M.	54.52					
118.1	213 M.	50.82	6 M.	72.00	6 M.	72.25	56.44
114.9	216 M.	65.50	3 M.	16.00	3 M.	18.47	13.87
113	218 M.	30.02	1 M.	72.00	1 M.	72.00	13.68
107.025	223 M.	38.02	5 M.	78.00	5 M.	77.82	13.28
100	230 M.	41.39	7 M.	2.00	7 M.	2.35	12.90
90	240 M.	47.26	10 M.	0.00	9 M.	77.01	11.86
			.....	.....	.....	.....	8.88
Total Departure			35 M.	0.00	34 M.	79.90	

The fact that the Carpenter line and the Restored Darling line converge going west, was observed in the field, and great care was exercised to obtain the correct bearings for the restored Darling line.

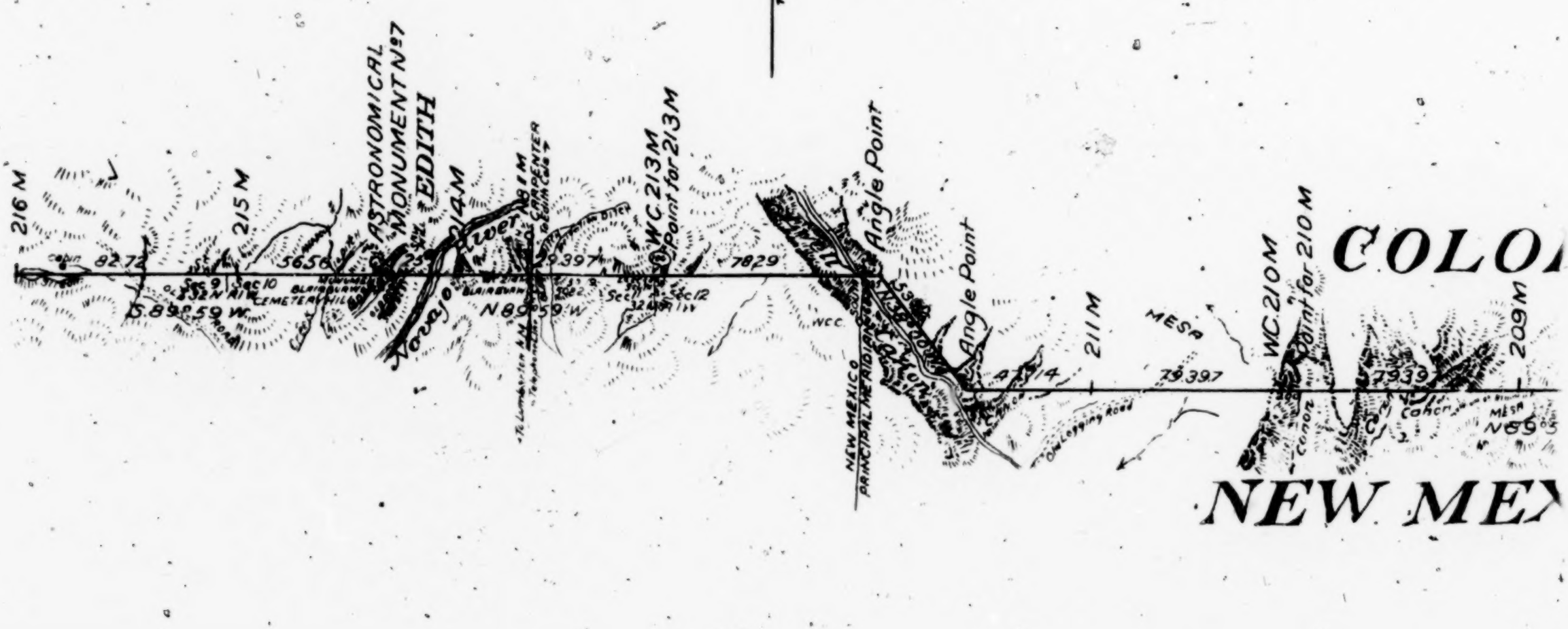
Certificate

I hereby certify that this plat is in strict conformity to the field notes of the restoration and Resurvey of that portion of the Original Boundary Line between Colorado and New Mexico embraced between the 203rd Mile Cor. and the 8th Astronomical Monument as surveyed by Ehud N. Darling Surveyor and Astronomer in the year 1868. Resurveyed under authority of the Hon. Commissioner of the General Land Office by letter 650496 "E" CGT, dated May 23. 1917, addressed to Frank M. Johnson, Supervisor of Surveys.

U.S. Surveyor Generals Office
Santa Fe. N. M., February 7, 1918.

Louis Dills
U.S. Sur. General

Plat showing Restor
COLORADO-NEW
As surveyed by Wm C.
Under Instructio

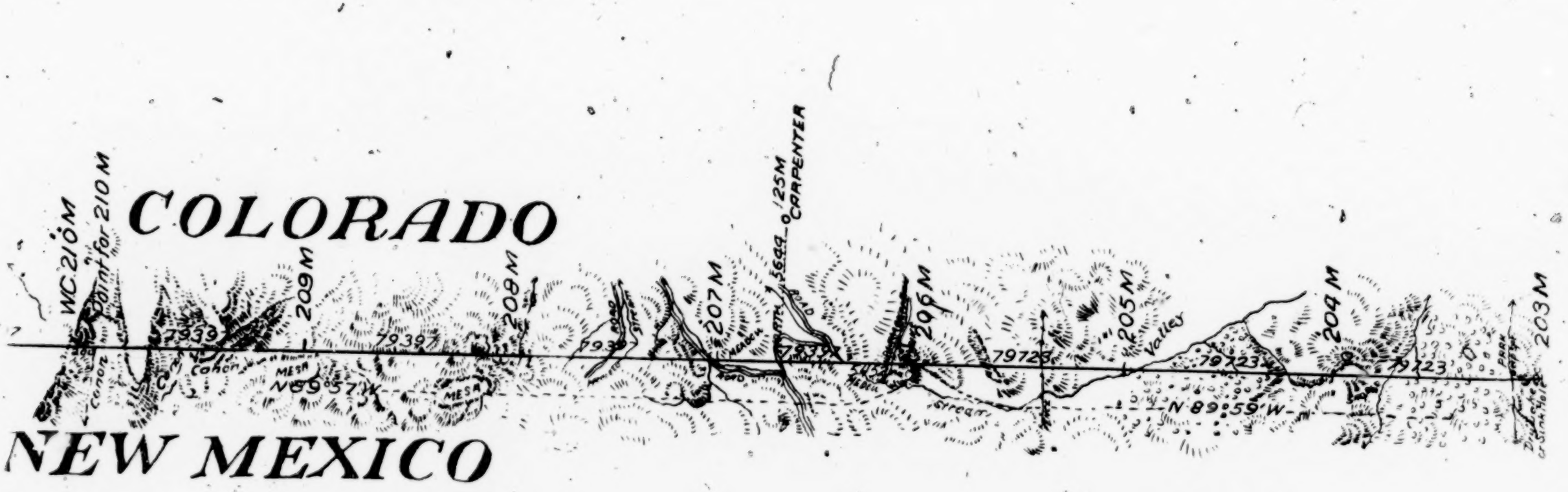


wing Restoralion and Resurvey of a portion of the

IDO-NEW MEXICO BOUNDARY LINE

eyed by Wm C. Perkins. U.S. Surveyor, Sep. 2-Nov. 3, 1917.
der Instructions for Group 79, Dated April 27. 1917

Scale; 40 Chs-1 inch



[fol. 1118] Certificate

I hereby certify that the foregoing pages numbered 1 to 86 inclusive, are a true and exact copy of the pages 8 to 98 inclusive, of the original field notes of the resurvey and restoration of that portion of the original boundary line between Colorado and New Mexico, embraced between the 203rd M. cor and the 7th Astronomical Monument, as surveyed by Ehud N. Darling, surveyor and astronomer, in the year 1868, on file in the Surveyor General's office, Santa Fe, New Mexico.

Manuel A. Sanchez, U. S. Surveyor General. (Seal of United States Surveyor General's Office, New Mexico.)

U. S. Surveyor General's Office, Santa Fe, New Mexico, September 11, 1922.

(Here follows Plaintiff's Exhibit No. 12, marked side folio page 1119.)

[fol. 1120] Plaintiff's Exhibit No. 13

Department of the Interior

General Land Office

Office of the Supervisor of Surveys

Denver, Colorado

August 3, 1917.

Mr. Justice Frank W. Parker, Chairman New Mexico Boundary Commission, Santa Fe, New Mexico.

Dear Sir: Certain public surveys in New Mexico are shortly to be closed on the Colorado-New Mexico boundary line through R. 1 E., and Rs. 1, 2, 3, & 4 W., N. M. P. M. Owing to the unusual survey conditions along the boundary it will be necessary to re-establish about 30 miles of the line in order to permit of the proper public land survey closure thereon. It is with a view to securing the concurrence of the state authorities of Colorado and New Mexico in the proposed relocation to the end that the General Land Office may proceed upon the reasonable presumption that confirmation will follow in due course, that I am writing you.

It will be recalled that pursuant to authority of an act of Congress approved March 2, 1867 (14 Stats. 466) E. N. Darling, U. S. Surveyor and Astronomer, in the year 1868 established the 37th parallel of north latitude so far as it constitutes the boundary line between Colorado and New Mexico. Public surveys were closed [fol. 1121] thereon, lands were disposed of, rights were acquired and private and political boundaries were fixed in both Colorado and

New Mexico with consideration of the fact that the Darling li
had been established and monumented as the northern bounda
of New Mexico, adopted and ratified as the southern boundary
Colorado, and accepted by the Federal government as the leg
boundary between the two states.

Subsequent investigations of public land survey conditions in t
Navajo River Valley in the vicinity of Edith, Colorado, and esp
cially those made by the General Land Office in 1899, 1900 an
1901, for the purpose of determining the status of certain alleg
conflicts of lands patented to or entered by settlers under the Col
rado and New Mexico official plats, disclosed the fact that in add
tion to the extensive obliteration of monuments, gross errors
alinement, measurement and position existed in the Darling lin
between the 6th and 8th astronomical monuments and that thes
errors were largely responsible for the overlap in the Colorado an
New Mexico public land surveys and the resultant conflict of claim
on the ground.

About this time the state of Colorado which was cognizant of th
general survey conditions as regarded the boundary in the localit
[fol. 1122] of Edith and with desire to correct the error and thereb
not only fix the south boundary of the state at this particular plac
but to establish the southern limits of Archuleta County and th
several school districts and voting precincts therein, made appro
priation for the reestablishment of the south boundary of Colorad
between the 6th and 8th astronomical monuments of the Darli
line. This resurvey was made without representation by the Federa
government on behalf of the (then) Territory of New Mexico an
was never approved, nor indeed was it ever presented to the govern
ment for approval.

As a result of these disclosures of the condition of the Darling
line, Congress by act of July 1, 1902 (32 Stats., 552, 574) author
ized the resurvey of the entire boundary line between the state of
Colorado and the territories of New Mexico and Oklahoma. This
resurvey which was executed by H. B. Carpenter, U. S. Surveyor
and Astronomer, in 1902 and 1903, consisted of a new fixation of
the 37th parallel of north latitude independent of the line estab-
lished by Darling in 1868. The Carpenter and the Darling lines
do not agree with one another as to position except perhaps at the
initial point, nor do they bear consistent relation to one another
throughout their course. The Carpenter line is nearly a half a mile
north of the Darling line in certain places and considerably south
of it in others. The Carpenter line, however, while established in
[fol. 1123] accordance with the statutory requirements, has never
been confirmed by Congress or the jurisdictions affected. The Senate
joint resolution No. 78, 60th Congress, First Session, entitled "Joint
Resolution Establishing the Boundary Line between the States of
Colorado and Oklahoma and the Territory of New Mexico" was
vetoed by President Roosevelt December 19, 1908, and on the
same day the veto message was laid on the table in the Senate, since
which time Congress has taken no further action in reference thereto.

It would therefore seem and it is so held by the General Land

Office in all matters coming before that office involving questions of jurisdiction that the Darling line of 1868 is the subsisting boundary line between the states.

Therefore, aside from every other consideration the Darling line of 1868, by reason of the failure of confirmation of the Carpenter line of 1902 and 1903, is the subsisting boundary line between Colorado and New Mexico, and is consequently the proper closing line for public surveys in both states now as it has been in the past. However, owing to its extensive obliteration and the magnitude and peculiarity of some of the errors of the original survey the necessity for the reestablishment of about thirty miles of the line through [fol. 1124] R. 1 E., and Rs. 1, 2, 3 and 4 W., N. M. P. M. is now urgent, in order to permit of the closure thereon of certain new public surveys about to be undertaken in New Mexico. The question is as to the method of reestablishment.

The Darling line contains an offset or "jog" of about 37.00 chs. in the vicinity of the 212th mile corner (a few miles east of Edith) due to the original surveyor's failure to correct his line back to astronomical monument No. 6 after finding by observation for latitude at astronomical monument No. 7 that he was about 37.00 chs. south of the 37th parallel of north latitude. After moving up to the parallel the line was corrected and monumented eastward to Ewell Canon a few miles distant and the monuments on that portion of the original southern line, west of Ewell Canon, were obliterated. The jog in the boundary, therefore, occurs in Ewell Canon, a deep rugged gorge a few miles east of Edith, Colorado, although there is an overlap in the public surveys of Colorado and New Mexico between the cañon and the Navajo river, caused no doubt by the uncertainty of position of the closing line in that locality.

It should be stated here that investigation made in the field as late as last fall further confirms the existence of conditions as set [fol. 1125] forth above and develops the fact of additional conflicts of claims in R. 4 W., due to a recognition by the surveyor in charge of the Carpenter line of 1902 as the state boundary. This latter fact is important in that it emphasizes the necessity of settling the boundary question at an early date.

After careful consideration of all the various features of the case the conclusion has been reached that the only equitable basis of restoration of that portion of the boundary in question would be the perpetuation of the existing line from the east to the 206th mile monument—the last identified state line corner east of the cañon—thence due west to Ewell Canon; and the restoration of the line from astronomical monument No. 8 through identified 215th and 217th mile corners and identified position of astronomical monument No. 7, thence due east to Ewell Canon. This restoration actually restores the line as marked on the ground, disturbs in least degree the public surveys on both sides of the line and places the unavoidable "jog" in a deep, rugged cañon with small opportunity to cause misunderstanding and confusion.

I enclose a blue print of a rough sketch of the Darling line as it is today.

May I not request that you give this matter your early attention, or if not properly under your jurisdiction that you refer it to the [fol. 1126] proper authorities to the end that I receive an expression of the attitude of the State, first, towards recognition of the Darling line of 1868 as the boundary line between Colorado and New Mexico, and second, if the Darling line is considered the subsisting boundary, towards the method of restoration of thirty miles thereof for the purpose of permitting closure of New Mexico public surveys thereon.

Mr. Alonzo E. Compton, Assistant Supervisor of Surveys, with headquarters at Santa Fe is thoroughly familiar with the situation and will be glad to give such information and advice concerning the line as you may require.

Yours very truly, Frank M. Johnson, Supervisor of Surveys.

RCM.

(Here follows diagram, marked side folio page 1127.)

[fol. 1128] PLAINTIFF'S EXHIBIT No. 14

House of Representatives, 57th Congress, 1st Session
Document No. 604

Survey of Boundaries of Colorado, New Mexico, and Oklahoma

Letter from the Secretary of the Treasury Transmitting a Copy of a Communication from the Secretary of the Interior, Submitting an Estimate of Appropriation for Survey of Boundaries of Colorado, New Mexico, and Oklahoma.

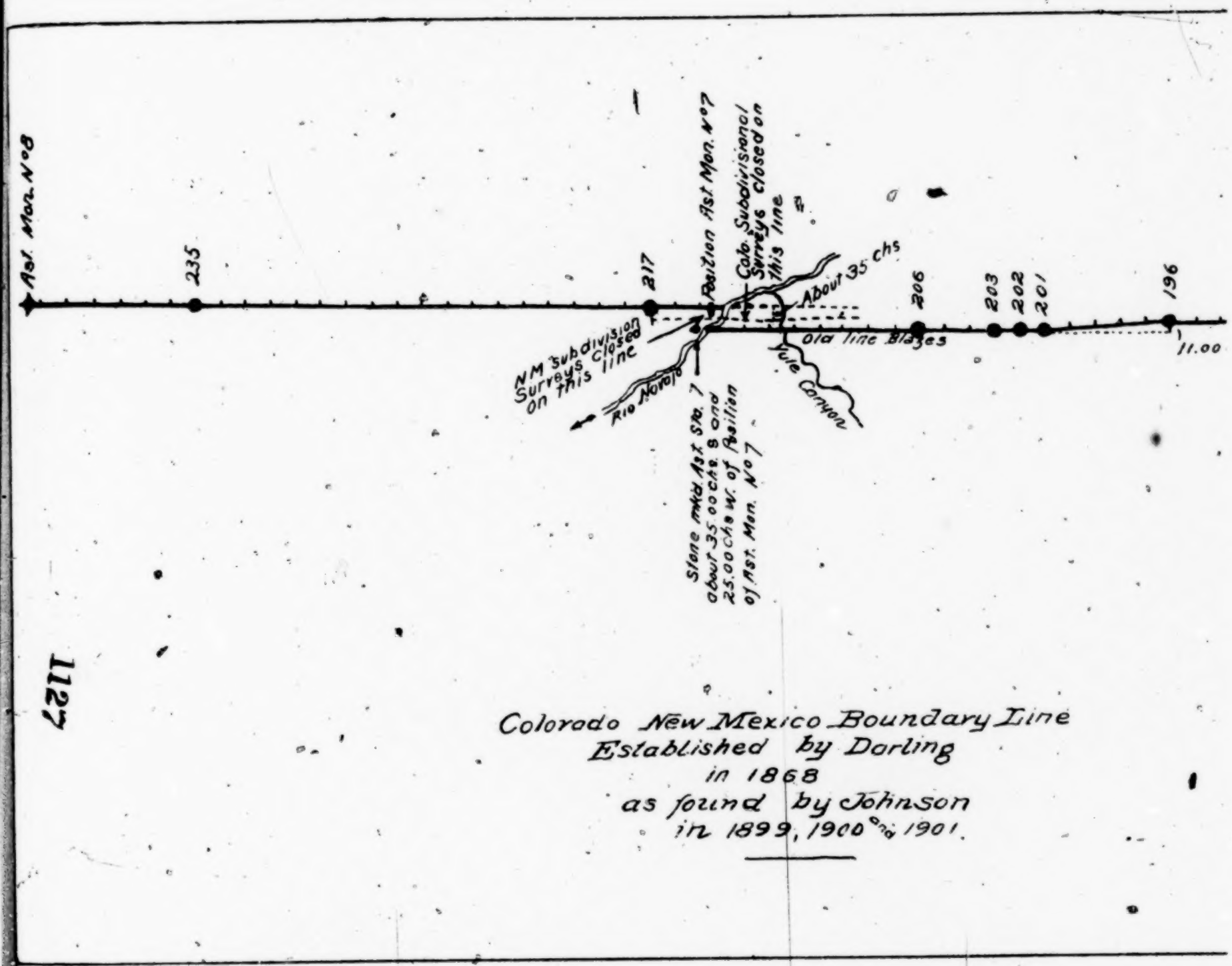
May 14, 1902.—Referred to the Committee on Appropriations and ordered to be printed.

Treasury Department,
Office of the Secretary,
Washington, May 13, 1902.

SIR: I have the honor to transmit herewith, for the consideration of Congress, copy of a communication from the Secretary of the Interior, of this date, submitting an estimate of appropriation for resurvey of the entire boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, to be immediately available and to continue available until expended, $31,500.

Respectfully, L. M. Shaw, Secretary.

The Speaker of the House of Representatives.



1127

Colorodo New Mexico Boundary Line
Established by Darling
in 1868
as found by Johnson
in 1899, 1900 and 1901.

Department of the Interior.
Washington, May 13, 1902.

SIR: I have the honor to transmit herewith a communication from the Commissioner of the General Land Office, dated the 10th instant, transmitting an estimate of $31,500 for the resurvey of the entire boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, to be immediately available and continue available until expended.

This estimate has my approval, and the same is respectfully forwarded through your Department for the appropriate action of Congress.

Respectfully, Thos. Ryan, Acting Secretary.

The Secretary of the Treasury.

[fol. 1129]

Department of the Interior,
General Land Office,
Washington, D. C., May 10, 1902.

SIR: I have the honor to acknowledge the receipt of your letter of the 9th instant returning report of F. M. Johnson, examiner of surveys, in regard to the south boundary of Colorado, together with office communication of April 30, 1902, transmitting the said report, as also the letter of A. M. Stevenson, of Denver, Colo., dated November 23, 1901, and office letter "E," of December 11, 1901, reporting upon the same.

You instruct this office to prepare and submit an estimate of the resurvey of the entire boundary line between the State of Colorado and Territories of New Mexico and Oklahoma.

In compliance with your directions, I now transmit estimate in duplicate for the resurvey of said line, which estimate is for a calculated distance of 387½ miles at $75 per mile, to which is added the cost of a field examination.

Binger Herman, Commissioner.

The Secretary of the Interior.

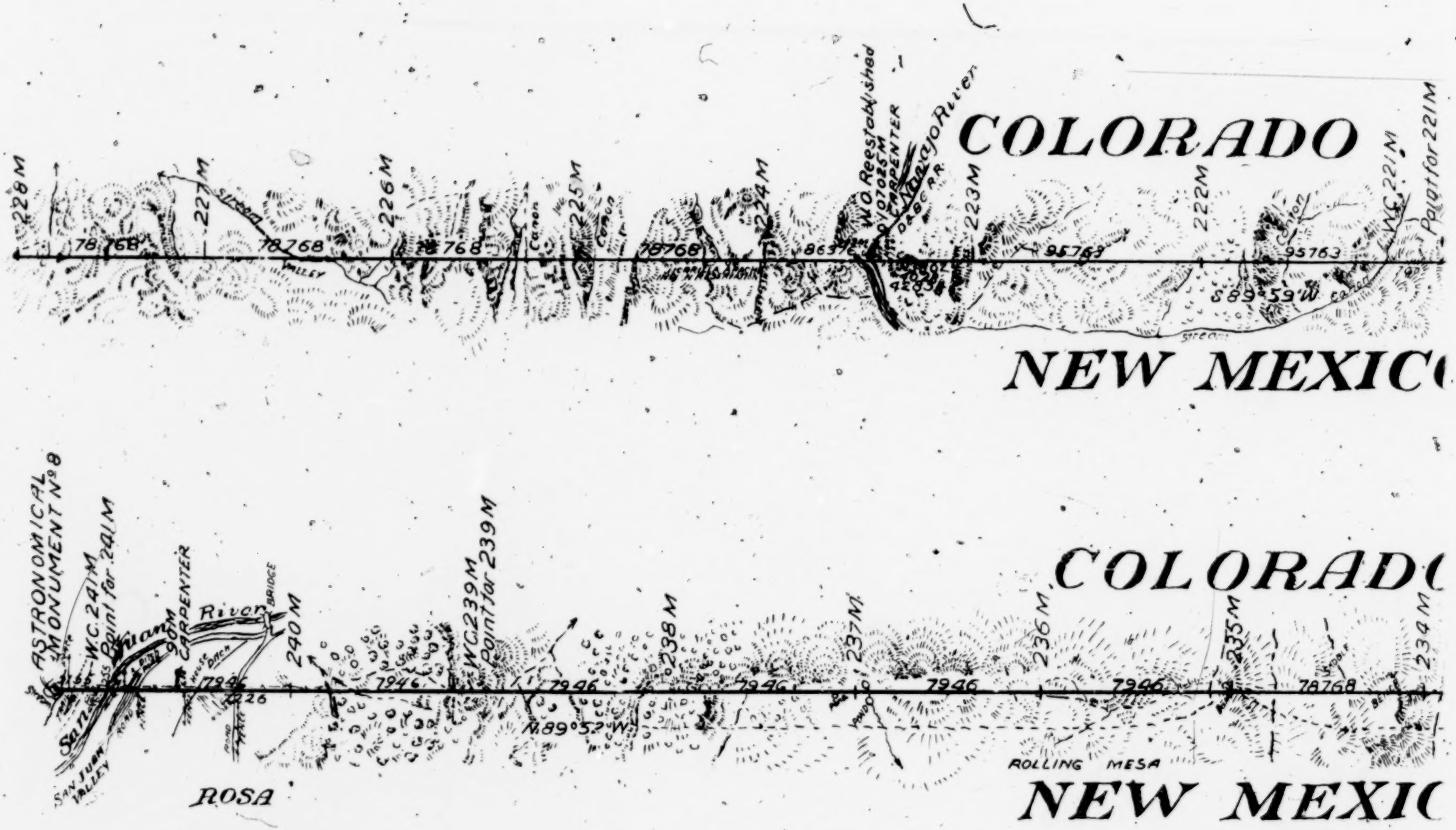
Estimates of Appropriations Required for the Service of the Fiscal Year Ending June 30, 1902, by the General Land Office

Interior Department

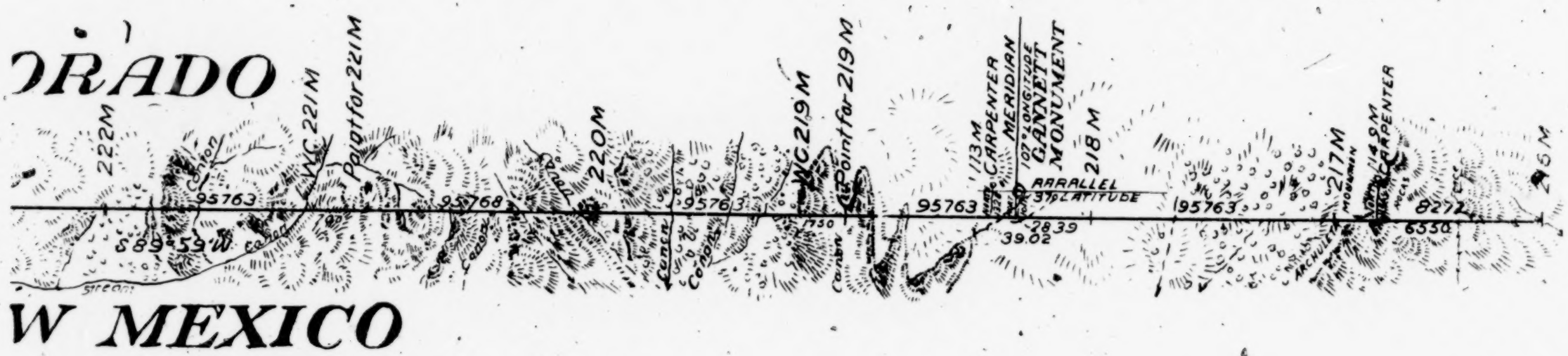
Surveying the Public Lands

Resurvey of south boundary of Colorado:

For the resurvey and reestablishment—on the line of the thirty-seventh parallel of north latitude—of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington, at a rate per mile to be fixed by the Secretary of the Interior, and for the examination in the field of said resurvey, a calculated distance of



Plaintiff's
Exhibit No. 12


ORADO
222M
WC 221M
Point for 221M
220M
WC 219M
Point for 219M
113M
CARPENTER
MERIDIAN
107° LONGITUDE
GANNETT
MONUMENT
218M
217M
CARPENTER
95763
95768
95763
95763
95763
S89°59'W
2839
39.02
8272
6550
W MEXICO
OLORADO
235M
234M
233M
232M
VALLEY
River
231M
100M
CARPENTER
230M
Point for 229M
WC 229M
228M
78768
78768
78768
78768
78768
78768
4139
400
S89°59'W
BENCH
Valley
Valley
MESA
W MEXICO

387½ miles, to be immediately available and continued available until expended (submitted) $31,500.

NOTE.—Attention is called to the fact that the legislature of Colorado passed an act authorizing (act approved April 11, 1901) the governor of said State to ask the Department of the Interior "to find and determine by appropriate proceedings and surveys and astronomical observations" a considerable portion of the south boundary of said State. This work being only temporary and provisional until, as stated in said act of the legislature, "such time as the Government of the United States shall fully resurvey and reestablish said line," the Department declined to resurvey the portion asked for. From a report received by the Commissioner of the General Land Office in April, 1902, by an examiner of surveys, it was found that on the 62 miles inspected of this line but few corners now remain on the line originally surveyed in 1868, and that the line was evidently erroneously established between identified monuments. This being the case, it is fair to presume other portions of the boundary are not correctly established on the true parallel. The report having been so recently received, and the necessity for an immediate reascertainment and resurvey being so urgent, in order to have the entire line reestablished by the most accurate scientific means available, this estimate is submitted as a deficiency.

[fol. 1130] PLAINTIFF'S EXHIBIT NO. 15

Senate, 58th Congress, 3d Session

Document No. 89

Re-establishment of Boundary Line Between Colorado and New Mexico and Oklahoma

Message from the President of the United States Transmitting a Communication from the Secretary of the Interior Relative to the Reestablishment of the Boundary Line Between the State of Colorado and the Territories of New Mexico and Oklahoma, Surveyed Under Authority of the Act of Congress of July 1, 1902

January 10, 1905.—Read, referred to the Committee on Territories, and ordered to be printed.

To the Senate and House of Representatives:

I transmit herewith, for the consideration of the Congress, a communication from the Secretary of the Interior relative to the reestablishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, surveyed under authority of the act of Congress of July 1, 1902 (32 Stat., 552, 574).

Theodore Roosevelt.

White House, January 10, 1905.

Department of the Interior,
Washington, January 7, 1905.

The President:

I transmit herewith a communication from the Commissioner of the General Land Office dated December 3, 1904, with accompanying papers, relative to the reestablishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, by Howard B. Carpenter, United States surveyor and astronomer, under authority of the act of Congress of July 1, 1902 (32 Stat., 552, 574).

[fol. 1131] Certain conditions have been developed in the reestablishment of this line that in the opinion of this Department requires consideration by Congress.

In the enabling act under which Colorado was admitted into the Union, the thirty-seventh parallel of north latitude was designated as the south boundary of said State, and was surveyed and marked by monuments in 1868 by Ehud N. Darling. Owing to reported inaccuracy of this survey, and the absence of many of the monuments, an appropriation was made in the act of July 1, 1902.

For the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington.

The thirty-seventh parallel of north latitude, as established by Howard B. Carpenter under authority of said act, passes through several towns lying wholly within the State of Colorado, according to the supposed boundary as originally surveyed, and along the entire line there is a material and, in many places, excessive variance between the lines of the two surveys.

The State of Colorado, by act of general assembly of April 11, 1901, authorized the appointment of a commissioner to act in conjunction with representatives of the General Government and of the adjacent Territories for the purpose of fixing and determining a part of said south boundary upon the line theretofore surveyed and established by Darling, but it does not appear that any further action was taken looking to fixing said boundary by such commission, as contemplated by said act. The act under which Carpenter's survey was made provided for the reestablishment of the entire south boundary, "on the line of the thirty-seventh parallel of north latitude."

A more comprehensive statement as to the variance between the two lines of survey is contained in the letters of the Commissioner of the General Land Office transmitted herewith.

As the reestablishment of said south boundary excludes a strip of territory over which the State of Colorado has heretofore exercised sovereign jurisdiction, I respectfully recommend that the matter be submitted to Congress for its consideration.

Very respectfully, E. A. Hitchcock, Secretary.

Department of the Interior,
General Land Office,
Washington, D. C., December 3, 1904.

SIR: I have the honor to acknowledge the receipt of your letter of June 3, 1904, directing that a full report be made of the resurvey and reestablishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, on the line of the thirty-seventh parallel of north latitude, executed by Howard B. Carpenter, United States surveyor and astronomer, under authority of the act of Congress of July 1, 1902 (32 Stat., 574).

[fol. 1132] In reply, I have the honor to report that by the act of February 28, 1861 (12 Stat., 172), entitled "An act to provide a temporary government for the Territory of Colorado," the south boundary of Colorado was fixed as the thirty-seventh parallel of latitude between the twenty-fifth and thirty-second meridians of longitude west of Washington.

The initial determination of the location of the thirty-seventh parallel of latitude in the locality mentioned was made in 1857, under the direction of Col. Joseph E. Johnston, U. S. Army, who established the same as far west as his determination of the one hundred and third meridian west of Greenwich, said meridian being the legal east boundary of New Mexico. In 1859 Captain Macomb, U. S. Army, under orders from the War Department, established a new monument at a point 11,582 feet east of the Johnston monument because of errors made in Colonel Johnston's determination, and in 1868 Ehud N. Darling, United States surveyor and astronomer, under contract with this office, established the north boundary of New Mexico from the Macomb monument west to the one hundred and ninth meridian, on the thirty-seventh parallel of latitude, as determined by a series of astronomical observations and calculations. Mile corners are reported to have been established on the line wherever the nature of the country would permit for a distance of 331¾ miles. Some of the country traversed by this line, however, was reported as too rough to chain, and triangulation was resorted to in order to carry the line forward and witness corners were established thereon at accessible points, thus leaving wide stretches of the line in certain places unmarked in any manner.

In 1873 it became necessary to establish the east boundary of the Southern Ute Indian Reservation in Colorado, the same being the one hundred and seventh meridian as extended north from the thirty-seventh parallel, the south boundary of the State. Under instructions from this Office, R. C. Darling, United States surveyor, established at a point on the E. N. Darling line the southeast corner of the said reservation estimated as on the one hundred and seventh meridian. A question having arisen as to the correctness of such location, S. S. Gannett, of the Geological Survey, in 1897 determined for the Indian Office the true location of the said reservation corner by astronomical observations.

This attempt to find a public land corner with which to connect his determination having developed the absence of such corners, an ex-

tended examination of the E. N. Darling line both east and west thereof was made by Frank M. Johnson, examiner of surveys, under the direction of this Office. As a result of his investigations it became apparent that in that locality very few traces of the boundary line as established by E. N. Darling were to be found, and such as were found were not by any means on the same parallel of latitude.

The fact was developed that Darling's astronomical station No. 7, which was established near the present town of Edith, was lost, and while its approximate location was fixed by the bearings to the several mountain peaks reported by Darling no trace of the monument itself remained.

These astronomical monuments were established by Darling as a result of a series of astronomical observations for latitude, and between these monuments the parallel was marked by corners either at [fol. 1133] mile points, or when the nature of the country was such as not to permit the corners to be so established, then witness corners were established at accessible points.

Astronomical monument No. 6 was established at a distance of 34 miles east of No. 7, and astronomical monument No. 8 at a distance of 27 miles west of No. 7. From astronomical monument No. 6, Examiner Johnson, in 1900, identified the Darling line westward for a distance of 15 miles, at which point all traces of the old line were lost and could not be identified in any manner, the topography not agreeing with the original notes in any particular, the old blazes disappearing and the country not being that described in the Darling field notes. The first corner identified west of this point was at a distance of about 5 miles, where an old corner was found, much decayed and lying on the ground, but identified as being in its original location by the bearing trees. This mile corner was about 11 chains south of the last trace of the line found to the east, and from it a portion of the line for a distance of about 5 miles was identified, beyond which, to the west, all traces of the mile corners had disappeared. Indications of a line were found only by means of old blazes on trees and topographic features, which themselves disappeared as the line approached the location of astronomical monument No. 7.

When this latter point was reached, there was a difference of nearly half a mile in the locations of the line brought from the east and of the point, identified as the most probable location of the monument itself, which, as before stated, had been lost. From this location west to astronomical monument No. 8 the corners established by Darling were few in number, on account of the alleged precipitous character of the country over which the line ran. Long triangulations were used, and in the distance of some 27 miles only 9 corners were established. Of these 9 corners, partial identification was made of 2 only, and upon these facts being reported to the Department, this office was directed, by letter dated May 9, 1902, to furnish an estimate for the resurvey and reestablishment of the thirty-seventh parallel between the twenty-fifth and thirty-second degree of longitude, in order that the same might be submitted to Congress.

Such estimate was submitted May 10, 1902, and by the act of July 1, 1902 (supra), an appropriation was made of $[illegible],500.

for the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington, at a rate per mile to be fixed by the Secretary of the Interior, and for the examination in the field of said resurvey, a calculated distance of three hundred and eighty-seven and one-eighth miles.

Under this authority a contract was entered into July 7, 1902, with Howard B. Carpenter, United States surveyor and astronomer, for the execution of the required survey and reestablishment. The work was commenced in September, 1902, and completed in October, 1903.

Nine stations were occupied and at each a series of astronomical observations for latitude were made by the most approved methods, astronomical monuments were placed on the line, and the parallel was established between the astronomical monuments. Mile corners were established and marked by durable iron pipes 4 feet long, with flanges at the bottom, set 2 feet in the ground and surmounted by a brass cap with suitable markings stamped thereon to indicate their location. [fol. 1134] The location of the monuments established by E. N. Darling in 1868 and found by H. B. Carpenter were noted and the markings thereon were then destroyed. The line was carried by Carpenter from the west to the east and, while on certain portions of the line the corners established by Darling were found, the fact was developed that in other portions no evidences of the Darling line remained for intervals of 10 or 15 miles, and in one instance a distance of 50 miles interval without any evidences of the Darling line.

Several settlements and towns of importance were found near or on the resurveyed parallel, the most important of which was the town of Edith, in the vicinity of which one of Darling's astronomical monuments was established. An astronomical station was located by Carpenter just west of this town and the parallel was found to cross the main street thereof, leaving the larger part of the town south of the line. In the vicinity of La Boca the line was found to pass between the station on the railroad and the settlement.

The Gannett monument was found only 3 chains south of the parallel, but none of the Darling monuments were found east or west thereof nearer than 25 miles.

West of this monument such old corners as were identified were from 5 to 10 chains south of the reestablished parallel, but east thereof the first of the old corners was found at a distance of half a mile south. This difference between the lines gradually diminished toward the east until the reestablished line passed to the south of the old line, but again crossed to the north, and when the west boundary of the State of Kansas was reached, the reestablished parallel was found to be one-half mile north of the southwest corner of the State.

Based upon these conditions, this office, by letter dated May 24, 1904, submitted a report to the Department setting forth the legal aspect of the changes made in the boundary line between the State

of Colorado and the Territories of New Mexico and Oklahoma, and I have the honor to renew the recommendations made therein.

Very respectfully, J. H. Fimple, Acting Commissioner.

The Secretary of the Interior.

Department of the Interior,
General Land Office,
Washington, D. C., July 2, 1902.

SIR: In accordance with an estimate regularly submitted, an appropriation was made in the general deficiency bill for the resurvey of the south boundary of Colorado at a rate per mile to be fixed by the Secretary of the Interior.

This line was originally surveyed in 1868 and its location has been in dispute for several years owing to the almost entire obliteration of all corners. At its last session the legislature of Colorado passed an act requesting its resurvey by the General Government, and an extensive examination made by this office proved this to be a necessity.

As the location of one town and of many settlers will be in doubt until this line is resurveyed, which may result in serious complications in election matters, as has been the case in the past, and which caused the legislature of Colorado to take action in the matter, it is necessary that this resurvey should be made as soon as possible.

I therefore respectfully request to be authorized to enter into a contract with Howard B. Carpenter to make this resurvey at the rate of $75 per mile, which is the figure upon which the estimate was [fol. 1135] based and which is considered to be reasonable for a survey of this character in a country mostly mountainous. Mr. Carpenter has recently completed the survey of the boundary line between Utah and Arizona in a manner that is entirely satisfactory to this office. The natural obstacles encountered upon this line were greater than those found upon any similar line surveyed under this office, notwithstanding which the survey was completed within the specified time, and a critical examination of both the field and astronomical work proves both to have been done in an excellent manner and the survey to be one of the best ever executed under this office. Mr. Carpenter desires to make this resurvey and is prepared to enter upon the work without delay.

Very respectfully, Binger Hermann, Commissioner.

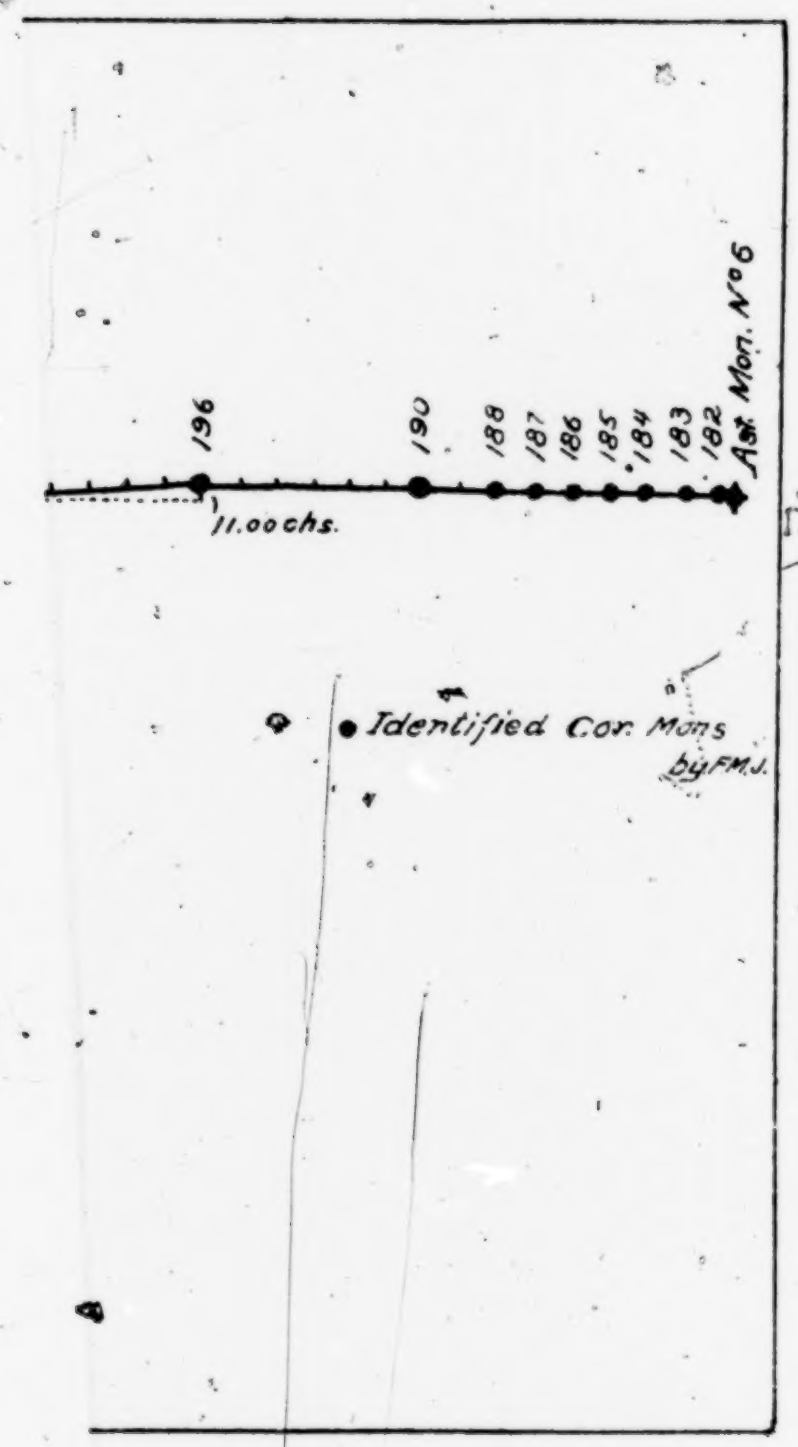
The Secretary of the Interior.

Department of the Interior, July 3, 1902.

SIR: Referring to your office letter of the 2d instant, relative to the above-entitled subject, you are advised that in accordance with your request you are hereby authorized to enter into a contract with Howard B. Carpenter to make the resurvey of the south boundary of Colorado, at the rate of $75 per mile.

Very respectfully, ——, Secretary.

The Commissioner of the General Land Office.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Department of the Interior,
General Land Office,
Washington, D. C., December 3, 1902.

SIR: The act of Congress approved July 1, 1902, making appropriations to supply deficiencies in the appropriations for the fiscal year ending June 30, 1902, and for prior years and other purposes (32 Stats., 552), under head of "Public land service" (p. 574), provides inter alia as follows:

"Boundary line, Colorado, New Mexico, and Oklahoma: For the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington, at a rate per mile to be fixed by the Secretary of the Interior, and for the examination in the field of said resurvey, a calculated distance of three hundred and eighty-seven and one-eighth miles, to continue available during the fiscal year nineteen hundred and three, thirty-one thousand five hundred dollars."

Concurring in the recommendation of this office per letter of July 2, 1902, the Secretary of the Interior, under date of July 3, 1902, authorized this office to enter into a contract with Howard B. Carpenter providing for the resurvey of the south boundary of Colorado, at the rate of $75 per mile.

Said contract was duly awarded July 7, 1902, to Howard B. Carpenter, United States surveyor, and provided for the resurvey of the boundary line between Colorado, New Mexico, and Oklahoma; liability, $29,000, payable from the quoted appropriation.

In acknowledging, per letter of October 25, 1902, the receipt of the "original" form of contract and bond awarded Howard B. Carpenter, United States surveyor, the Auditor of the Treasury for the Interior Department called the attention of this office to the terms of the act making the quoted appropriation, and held that in the opinion of his office said appropriation "is not available and can not lawfully be used after the end of the current fiscal year (June 30, 1903) to pay for the survey as contracted for or for the field examination of the same."

By office letter of October 30, 1902, Howard B. Carpenter, United States surveyor, was advised of the construction placed on the terms of the stated appropriation by the Auditor of the Treasury for the Interior Department, and was requested to report as to the present status of the resurveys embodied in his contract of July 1, 1902, and [fol. 1136] whether or not he would be able to complete the work and make due return thereof within the stipulated time (June 30, 1903). A copy of said letter is herewith inclosed.

This office is now in receipt of a letter, dated Edith, N. Mex., November 22, 1902, signed "Howard B. Carpenter, United States surveyor," in which he reports the present status of the resurveys executed under his contract, and concludes as follows:

"A heavy snow on either of these mountain ranges would block our progress for some time, so that, while I may possibly be able to complete the work within the time mentioned I have great fear that circumstances over which I have no control will make it impossible for me to do so."

In view of the statement made by the Auditor of the Treasury for the Interior Department, to the effect that the appropriation in question will not be available after June 30, 1903, added to the report of Surveyor Carpenter that, for stated reasons and circumstances over which he had no control, it may be impossible for him to complete the work within the stipulated time (June 30, 1903), I have the honor to request that proper action be taken by the Department to the end of causing Congress at the present session to continue the appropriation of $31,500 for the resurvey and reestablishment of the described boundary line and to make the same available during the fiscal year ending June 30, 1904.

The following draft of an item covering the desired extension of the stated appropriation is submitted for the consideration of the Department:

"The appropriation of thirty-one thousand five hundred dollars for the resurvey and reestablishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, contained in the act of Congress approved July first, nineteen hundred and two, making appropriations to supply deficiencies in the appropriations for the fiscal year ending June thirtieth, nineteen hundred and two, and for prior years, and for other purposes, is hereby continued and made available until June thirtieth, nineteen hundred and four."

A copy of letter of Howard B. Carpenter, United States surveyor, is inclosed herewith.

Very respectfully, W. A. Richards, Assistant Commissioner.

The Secretary of the Interior.

Department of the Interior, December 9, 1902.

SIR: I have the honor to transmit herewith a copy of a letter of the 3d instant from the Assistant Commissioner of the General Land Office, with its inclosures, relative to the resurvey and reestablishment of the boundary line between Colorado, New Mexico, and Oklahoma, for which provision was made by an item of $31,500 in the deficiency appropriation act of July 1, 1902 (32 Stat. L., 574).

It appears from the correspondence that this appropriation will not be available after June 30, 1903, and that it may be impossible for the resurvey now being prosecuted to be completed by that date.

I therefore recommend, in accordance with the request of the Assistant Commissioner, that the above-mentiond appropriation of $31,500 for the resurvey and reestablishment of the described boun-

dary line be continued and made available during the fiscal year ending June 30, 1904.

Very respectfully,

——— ———, Secretary.

The Speaker of the House of Representatives.

Department of the Interior,
General Land Office,
Washington, D. C., May 24, 1904.

SIR: The question now arises as to the force and effect to be given to the survey of the south boundary line of the State of Colorado, which forms the north boundary of the Territories of New Mexico and Oklahoma, which was recently made under the act of July 1, 1902 (32 Stat. L., 374), and as to what further action is necessary in the premises.

A recital of the history of this boundary is necessary to a full consideration of the question, and I therefore beg to submit that section 2 of the enabling act of March 3, 1875 (18 Stat. L., 474), under [fol. 1137] which the State of Colorado was admitted into the Union, fixes this boundary "along the thirty-seventh parallel of north latitude," this being the line which had theretofore been declared the south boundary of the Territory of Colorado in section 1, act of February 28, 1861 (12 Stat. L., 172).

This line was surveyed and marked in 1868 by Ehud N. Darling, surveyor and astronomer, on behalf of the Government, but the accuracy of that survey was afterwards called in question, and, many of the monuments along the line having disappeared, the general assembly of the State of Colorado, by its act of April 11, 1901, authorized the appointment of a commissioner to act in conjunction with like representatives to be appointed by authority of the Territorial assembly of New Mexico and of your Department, should such representatives be appointed, or independently if they were not appointed, for the purpose of fixing and determining "the south boundary line of the State of Colorado, and between said State of Colorado and the Territory of New Mexico, between astronomical monument No. 6, heretofore established on the thirty-seventh parallel of north latitude and at a point on said parallel near Osier, Colo., and extending thence westward along said thirty-seventh parallel, fixed as the southern boundary line of Colorado by said act of Congress and heretofore surveyed by Ehud N. Darling for the United States, and astronomical monument No. 8, also established by said Darling on said parallel at a point about 4 miles west of Arboles, Colo., and to resurvey and reestablish said line, as hereinbefore surveyed and established by said Darling, between said monuments."

No representative was ever designated by your Department to act in conjunction with the commissioner provided for in this act, and this office is not informed as to whether the State ever took any action thereunder.

The condition of this line having been called to the attention of your Department, an examination in the field was made by Ex-

amined Frank M. Johnson, whose report was submitted to your Department by this office on April 30, 1902. This report not only disclosed the fact that some of the astronomical monuments were missing, but showed that the line as established by Darling was not in some places located upon the thirty-seventh parallel. By your letter of May 9, 1902, you stated: "In view of the condition of this line, as declared by this examination, and of its importance as a boundary between the State of Colorado upon the north and the Territories of New Mexico and Oklahoma upon the south, it is deemed advisable that it should be resurveyed and reestablished;" and you accordingly directed this office to at once furnish your Department with an estimate "for the resurvey and reestablishment on the thirty-seventh degree of north latitude between the twenty-fifth and thirty-second degrees of longitude west from Washington to be submitted to Congress."

In response to the recommendations of your Department, Congress by its act of July 1, 1902 (32 Stat. L., 574), made appropriation "For the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington * * * a calculated distance of 381 miles," and it was pursuant to this act, that the line has been resurveyed and reestablished by Howard B. Carpenter, United States surveyor and astronomer, on that parallel.

Prior to this resurvey the town of Edith was supposed to be in the State of Colorado, the old State boundary line being in doubt at that point. Mr. Carpenter's survey shows the greater part, if not all, of the town to be in New Mexico. An examination of the field notes and plats of this survey shows that the line established by Carpenter passes through the villages of Ortiz and La Costilla, all of which have heretofore been assumed to lie in the State of Colorado. This line is continuously marked by iron posts at mile intervals, and with eight large stone monuments marking the points of astronomical stations where observations were taken for determination of the parallel, and these markings should tend to remove all doubt as to the question of jurisdiction when the line has been properly declared to be the boundary.

The question now arises as to what further action is necessary to be taken, and in this connection the fact should be noted that the intention expressed by the general assembly of Colorado, in making provisions for the reestablishment of this boundary, does not fully coincide with the directions given by Congress. The general assembly directed the reestablishment of only a portion of this line, while Congress declared that the entire boundary should be reestablished. The general assembly directed its commissioner "to resurvey [fol. 1138] and reestablish said line, as heretofore surveyed and established by said Darling, between said astronomical monuments," while it was the intention of Congress that the line should be reestablished and relocated upon the thirty-seventh parallel, regardless of any lines or monuments established by Darling.

The power to determine controversies over boundaries arising between States, or between the National Government and any State, appears to be vested alone in the Supreme Court. Article 9 of the Articles of Confederation, 1777, declared that Congress should "be the last resort of appeal in all disputes and differences now subsisting, or that may hereafter arise, between two or more States concerning boundary, jurisdiction, or any other cause whatever," but no such power as this was vested in Congress by our Constitution. Its section 2, article 3, declares that the original power of the Government "shall extend to all * * * controversies to which the United States shall be a party; to controversies between two or more States," etc., and under this clause the Supreme Court has repeatedly asserted and exercised its original jurisdiction in hearing and determining controveries over the boundaries between States. (See R. I. v. Mass.; 12 Pet., 657; N. J. v. N. Y., 5 Pet., 284; Mo. v. Iowa, 7 How., 606; Fla. v. Ga., 17 How., 478; Ala. v. Ga., 23 How., 505; Va. v. W. Va., 11 Wall., 39; Mo. v. Ky., 11 Walk, 395; Ind. v. Ky., 136 U. S., 479; Nebr. v. Iowa, 143 U. S., 359; Va. v. Tenn., 148 U. S., 503.)

These, however, were controversies arising between individual States, and it was not until the case of the United States v. Texas was considered (143 U. S., 621) that the Supreme Court declared that it had original jurisdiction in a suit in equity brought by the United States against a State to determine the boundary line between that State and a Territory of the United States, and that that question is susceptible of original determination. A careful reading of this case discloses the opinion of the Supreme Court to the effect that the National Government in its relation to State governments occupies the status of a State, and that any controversies which arise between it and States over the boundaries between States and Territories must be settled by a proper action in that court, and nowhere have I been able to find that Congress has ever been recognized as having any power to determine such a question. Congress would, of course, have the power to fix or alter boundary lines between Territories, but after a boundary line of a State has been solemnly declared by its enabling act it appears that the Supreme Court is the only branch of the Government that has power to determine controversies thereon.

If this conclusion is correct, then neither Congress, by directing the survey of this line, nor your Department, by causing that survey to be made and approved, has performed an act which is binding upon the State of Colorado in the absence of its recognition or ratification of those acts.

It is true that this case does not present a question exactly like the question which arises between the Government and Texas over the boundary in dispute between them. There it was a question as to whether one river or another formed a boundary line, while here there can be no dispute as to the fact that the line between Colorado and New Mexico should be on the thirty-seventh parallel, yet there may be a dispute as to whether the monuments marking the line

established by Carpenter are located upon that parallel, and until all possibility for the arising of such a dispute has been eliminated the Government can not with safety recognize the boundary as having been established beyond controversy.

In view of the fact that the executive branch of the Government has no inherent powers in this matter, and has only acted in obedience to the will of Congress in making this survey, it is the opinion of this Office that the result of that survey should be reported to Congress for its consideration and to form the basis of any negotiations which it may deem necessary to induce the State of Colorado to adopt the line so established as the true boundary line or to have the matter determined by proper action in the Supreme Court.

Very respectfully, W. A. Richards, Commissioner.

The Secretary of the Interior.

Department of the Interior,
Washington, June 3, 1904.

SIR: Referring to your letter of May 24, 1904, relative to the resurvey and restablishment of the boundary line between the State of [fol. 1139] Colorado and the Territories of New Mexico and Oklahoma on the line of the thirty-seventh parallel of north latitude, made by Howard B. Carpenter under authority of the act of Congress of July 1, 1902 (32 Stat., 574), you are directed to make a full report of said survey, and upon the assembling of Congress you will transmit said report to the Department to be submitted to Congress for its consideration.

Very respectfully, E. A. Hitchcock, Secretary.

The Commissioner of the General Land Office.

Office of Secretary of State,
Denver, Colo., July 11, 1904

DEAR SIR: Would you kindly inform this office if the boundary line between Colorado and the Territory of New Mexico has been established by the United States Government?

We have several inquiries from people living at or near the line who are desirous of knowing whether they are residents of the State of Colorado or of the Territory of New Mexico.

If the line has been established, please give us all the data regarding the same. An early reply will greatly oblige.

Very truly yours, James Cowie, Secretary of State, by Timothy O'Connor, Deputy.

Hon. Ethan Allen Hitchcock, Secretary of the Interior, Washington, D. C.

August 1, 1904.

SIR: In a letter of the 11th ultimo to the Department you asked to be advised whether or not the boundary line between the State of Colorado and the Territory of New Mexico has been established

by the Government; and, if so, to be supplied with all of the data regarding same.

In answer to your letter I enclose copy of the report thereon by the Acting Commissioner of the General Land Office, under date of the 28th ultimo, which supplies you with all the information now available respecting the boundary line.

Very respectfully, ——— ———, Acting Secretary.

The Secretary of State, State of Colorado, Denver, Colo.

Department of the Interior,
General Land Office,
Washington, D. C., July 28, 1904.

SIR: I have the honor to acknowledge the receipt, by your reference for report in duplicate and return, of a letter dated July 14, 1904, from the secretary of state, Denver, Colo., relative to the establishment of the boundary line between Colorado and New Mexico and requesting all data relative to the same.

In reply I have the honor to report that under the provisions of the act of July 1, 1902 (32 Stats., 574), the south boundary of Colorado was resurveyed and reestablished by Howard B. Carpenter, United States surveyor and astronomer, on the thirty-seventh parallel of north latitude in the years 1902 and 1903, and the said resurvey and reestablishment was approved and accepted by this office February 25, 1904.

The question having arisen as to the force and effect to be given to this resurvey, this Office on May 24, 1904, submitted to the Department a letter expressing the opinion that "the result of that survey should be reported to Congress for its consideration and to form the basis of any negotiations which it may deem necessary to induce the State of Colorado to adopt the line so established as the [fol. 1140] true boundary line, or to have the matter determined by proper action in the Supreme Court."

On June 3, 1904, the Department directed this Office to make a full report of said survey, and upon the assembling of Congress to transmit said report to the Department to be submitted to Congress for its consideration.

It is the understanding of this Office that no steps are to be taken concerning the status of the lands affected by the resurvey pending action upon the report to be submitted by this Office to the Department for transmittal to Congress at its next ensuing session.

The letter from the secretary of the State of Colorado is herewith returned.

Very respectfully, J. H. Fimple, Acting Commissioner.

The Secretary of the Interior.

[fol. 1141] PLAINTIFF'S EXHIBIT No. 16

House of Representatives, 60th Congress, 1st Session

Report No. 1726

Establishing Boundary Line Between Colorado and New Mexico and Oklahoma

May 12, 1908.—Referred to the House Calendar and ordered to be printed.

Mr. Clayton, from the Committee on the Judiciary, submitted the following

Report

[To accompany S. R. 78]

The Committee on the Judiciary, to whom was referred the joint resolution (S. R. 78) establishing the boundary line between the States of Colorado and Oklahoma and the Territory of New Mexico, having considered the same, report as follows and recommend the passage of the resolution:

The joint resolution passed the Senate on April 13, having been unanimously reported from the Senate Committee on the Judiciary, no written report having been filed.

On July 1, 1902, Congress made an appropriation of $31,500—

for the resurvey and re-establishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington, at a rate per mile to be fixed by the Secretary of the Interior, and for the examination in the field of said resurvey, a calculated distance of three hundred and eighty-seven and one-eight miles.

Under this authority a contract was entered into July 7, 1902, with Howard B. Carpenter, United States surveyor and astronomer, for the execution of the required survey and re-establishment. The work was commenced in September, 1902, and completed in October, 1903, and said resurvey and re-establishment was approved and accepted by the Interior Department February 25, 1904.

This joint resolution confirms the action of the Interior Department and establishes the southern boundary line on the thirty-seventh parallel, as fixed by the act making Colorado a Territory (February 28, 1861; 12 Stat. L., 172) and by the enabling act.

This survey makes no change in the line, but is only an attempt to find out where the line is and establish the monuments on the line, which the Interior Department now say has been done. It takes no [fol. 1142] territory from the State of Colorado, and in case of a question arising would not be binding on the State.

Senate Document No. 89, Fifty-eighth Congress, third session, gives a full history of the matter, and is appended hereto and made a part of this report.

[Senate Document No. 89, Fifty-eighth Congress, Third Session]

To the Senate and House of Representatives:

I transmit herewith, for the consideration of the Congress, a communication from the Secretary of the Interior relative to the re-establishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, surveyed under authority of the act of Congress of July 1, 1902 (32 Stat., 552, 574).

Theodore Roosevelt.

White House, January 10, 1905.

Department of the Interior,
Washington, January 7, 1905.

The President:

I transmit herewith a communication from the Commissioner of the General Land Office dated December 3, 1904, with accompanying papers, relative to the establishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, by Howard B. Carpenter, United States surveyor and astronomer, under authority of the act of Congress of July 1, 1902 (32 Stat., 552, 574).

Certain conditions have been developed in the re-establishment of this line that in the opinion of this Department requires consideration by Congress.

In the enabling act under which Colorado was admitted into the Union, the thirty-seventh parallel of north latitude was designated as the south boundary of said State, and was surveyed and marked by monuments in 1868 by Ehud N. Darling. Owing to reported inaccuracy of this survey, and the absence of many of the monuments, an appropriation was made in the act of July 1, 1902.

"For the resurvey and re-establishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington."

The thirty-seventh parallel of north latitude, as established by Howard B. Carpenter under authority of said act, passes through several towns lying wholly within the State of Colorado, according to the supposed boundary as originally surveyed, and along the entire line there is a material and, in many places, excessive variance between the lines of the two surveys.

The State of Colorado, by act of general assembly of April 11, 1901, authorized the appointment of a commissioner to act in conjunction with representatives of the General Government and of the

adjacent Territories for the purposes of fixing and determining a part of said south boundary upon the line theretofore surveyed and established by Darling, but it does not appear that any further action was taken looking to fixing said boundary by such commission, as contemplated by said act. The act under which Carpenter's survey was made provided for the re-establishment of the entire south boundary, "on the line of the thirty-seventh parallel of north latitude."

A more comprehensive statement as to the variance between the two lines of survey is contained in the letters of the Commissioner of the General Land Office transmitted herewith.

As the re-establishment of said south boundary excludes a strip of territory over which the State of Colorado has heretofore exercised sovereign jurisdiction, I respectfully recommend that the matter be submitted to Congress for its consideration.

Very respectfully, E. A. Hitchcock, Secretary.

[fol. 1143]

Department of the Interior,
General Land Office,
Washington, D. C., December 3, 1904.

SIR: I have the honor to acknowledge the receipt of your letter of June 3, 1904, directing that a full report be made of the resurvey and reestablishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, on the line of the thirty-seventh parallel of north latitude, executed by Howard B. Carpenter, United States surveyor and astronomer, under authority of the act of Congress of July 1, 1902. (32 Stat., 574.)

In reply I have the honor to report that by the act of February 28, 1861 (12 Stat., 172), entitled "An act to provide a temporary government for the Territory of Colorado," the south boundary of Colorado was fixed as the thirty-seventh parallel of latitude between the twenty-fifth and thirty-second meridians of longitude west of Washington.

The initial determination of the location of the thirty-seventh parallel of latitude in the locality mentioned was made in 1857, under the direction of Col. Joseph E. Johnston, U. S. Army, who established the same as far west as his determination of the one hundred and third meridian west of Greenwich, said meridian being the legal east boundary of New Mexico. In 1859 Captain Macomb, U. S. Army, under orders from the War Department, established a new monument at a point 11,582 feet east of the Johnston monument because of errors made in Colonel Johnston's determination, and in 1868 Ehud N. Darling, United States surveyor and astronomer, under contract with this Office, established the north boundary of New Mexico from the Macomb monument west to the one hundred and ninth meridian, on the thirty-seventh parallel of latitude, as determined by a series of astronomical observations and calculations. Mile corners are reported to have been established on the line wherever the nature of the country would permit for a distance of 331¾ miles. Some of the country traversed by this line, however, was reported as too rough to chain, and triangulation was resorted to in order to

carry the line forward and witness corners were established thereon at accessible points, thus leaving wide stretches of the line in certain places unmarked in any manner.

In 1873 it became necessary to establish the east boundary of the Southern Ute Indian Reservation in Colorado, the same being the one hundred and seventh meridian as extended north from the thirty-seventh parallel, the south boundary of the State. Under instructions from this Office, R. C. Darling, United States surveyor, established at a point on the E. N. Darling line the southeast corner of the said reservation estimated as on the one hundred and seventh meridian. A question having arisen as to the correctness of such location, S. S. Gannett, of the Geological Survey, in 1897 determined for the Indian Office the true location of the said reservation corner by astronomical observations.

His attempt to find a public-land corner with which to connect his determination having developed the absence of such corners, an extended examination of the E. N. Darling line both east and west thereof was made by Frank M. Johnson, examiner of surveys, under the direction of this Office. As a result of his investigations it became apparent that in that locality very few traces of the boundary line as established by E. N. Darling were to be found, and such as were found were not by any means on the same parallel of latitude.

The fact was developed that Darling's astronomical station No. 7, which was established near the present town of Edith, was lost, and while its approximate location was fixed by the bearings to the several mountain peaks reported by Darling no trace of the monument itself remained.

These astronomical monuments were established by Darling as a result of a series of astronomical observations for latitude, and between these monuments the parallel was marked by corners either at mile points, or when the nature of the country was such as not to permit the corners to be so established, then witness corners were established at accessible points.

Astronomical monument No. 6 was established at a distance of 34 miles east of No. 7 and astronomical monument No. 8 at a distance of 27 miles west of No. 7. From astronomical monument No. 6, Examiner Johnson, in 1900, identified the Darling line westward for a distance of 15 miles, at which point all traces of the old line were lost and could not be identified in any manner, the topography not agreeing with the original notes in any particular, the old blazes disappearing and the country not being that described in the Darling field notes. The first corner identified west of this point was at a distance of about 5 miles, where an old corner was found, much decayed and lying on the ground, but identified as being in its original location by the bearing trees. This mile corner was about 11 chains south of the last trace of the line found to the east, and from it a portion of the line for a distance of about 5 miles was identified, beyond which, to the west, all traces of the mile corners [fol. 1111] had disappeared. Indications of a line were found only by means of old blazes on trees and topographic features which themselves disappeared as the line approached the location of astronomical monument No. 7.

When this latter point was reached, there was a difference of nearly half a mile in the locations of the line brought from the east and of the point identified as the most probable location of the monument itself, which, as before stated, had been lost. From this location west to astronomical monument No. 8 the corners established by Darling were few in number, on account of the alleged precipitous character of the country over which the line ran. Long triangulations were used, and in the distance of some 27 miles only 9 corners were established. Of these 9 corners partial identification was made of 2 only, and upon these facts being reported to the Department this office was directed, by letter dated May 9, 1902, to furnish an estimate for the resurvey and reestablishment of the thirty-seventh parallel between the twenty-fifth and thirty-second degree of longitude, in order that the same might be submitted to Congress.

Such estimate was submitted May 10, 1902, and by the act of July 1, 1902 (supra), an appropriation was made of $31,500—

"for the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington, at a rate per mile to be fixed by the Secretary of the Interior, and for the examination in the field of said resurvey, a calculated distance of three hundred and eighty-seven and one-eighth miles."

Under this authority a contract was entered into July 7, 1902, with Howard B. Carpenter, United States surveyor and astronomer, for the execution of the required survey and reestablishment. The work was commenced in September, 1902, and completed in October, 1903.

Nine stations were occupied and at each a series of astronomical observations for latitude were made by the most approved methods, astronomical monuments were placed on the line, and the parallel was established between the astronomical monuments. Mile corners were established and marked by durable iron pipes 4 feet long, with flanges at the bottom, set 2 feet in the ground and surmounted by a brass cap with suitable markings stamped thereon to indicate their location.

The location of the monuments established by E. N. Darling in 1868 and found by H. B. Carpenter were noted and the markings thereon were then destroyed. The line was carried by Carpenter from the west to the east and, while on certain portions of the line the corners established by Darling were found, the fact was developed that in other portions no evidences of the Darling line remained for intervals of 10 or 15 miles, and in one instance a distance of 50 miles interval without any evidences of the Darling line.

Several settlements and towns of importance were found near or on the resurveyed parallel, the most important of which was the town of Edith, in the vicinity of which one of Darling's astronomical monuments was established. An astronomical station was located by

Carpenter just west of this town and the parallel was found to cross the main street thereof, leaving the larger part of the town south of the line. In the vicinity of La Boca the line was found to pass between the station on the railroad and the settlement.

The Gannett monument was found only 3 chains south of the parallel, but none of the Darling monuments were found east or west thereof nearer than 25 miles.

West of this monument such old corners as were identified were from 5 to 10 chains south of the reestablished parallel, but east thereof the first of the old corners was found at a distance of half a mile south. This difference between the lines gradually diminished toward the east until the reestablished line passed to the south of the old line, but again crossed to the north, and when the west boundary of the State of Kansas was reached the reestablished parallel was found to be one-half mile north of the southwest corner of the State.

Based upon these conditions, this office, by letter dated May 24, 1904, submitted a report to the Department setting forth the legal aspect of the changes made in the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, and I have the honor to renew the recommendations made therein.

Very respectfully, J. H. Fimple, Acting Commissioner.

The Secretary of the Interior.

[fol. 1145]

Department of the Interior,
General Land Office,
Washington, D. C., July 2, 1902.

SIR: In accordance with an estimate regularly submitted, an appropriation was made in the general deficiency bill for the resurvey of the south boundary of Colorado at a rate per mile to be fixed by the Secretary of the Interior.

This line was originally surveyed in 1868 and its location has been in dispute for several years owing to the almost entire obliteration of all corners. At its last session the legislature of Colorado passed an act requesting its resurvey by the General Government, and an extensive examination made by this Office proved this to be a necessity.

As the location of one town and of many settlers will be in doubt until this line is resurveyed, which may result in serious complications in election matters, as has been the case in the past, and which caused the legislature of Colorado to take action in the matter, it is necessary that this resurvey should be made as soon as possible.

I therefore respectfully request to be authorized to enter into a contract with Howard B. Carpenter to make this resurvey at the rate of $75 per mile, which is the figure upon which the estimate was based and which is considered to be reasonable for a survey of this character in a country mostly mountainous. Mr. Carpenter has recently completed the survey of the boundary line between Utah and Arizona in a manner that is entirely satisfactory to this Office. The natural obstacles encountered upon this line were greater than

those found upon any similar line surveyed under this Office, notwithstanding which the survey was completed within the specified time, and a critical examination of both the field and astronomical work proves both to have been done in an excellent manner and the survey to be one of the best ever executed under this Office. Mr. Carpenter desires to make this resurvey and is prepared to enter upon the work without delay.

Very respectfully Binger Hermann, Commissioner.

The Secretary of the Interior.

Department of the Interior, July 3, 1902.

SIR: Referring to your office letter of the 2d instant, relative to the above-entitled subject, you are advised that in accordance with your request you are hereby authorized to enter into a contract with Howard B. Carpenter to make the resurvey of the south boundary of Colorado, at the rate of $75 per mile.

Very respectfully, ——— ———, Secretary

The Commissioner of the General Land Office.

Department of the Interior:
General Land Office,
Washington, D. C., December 3, 1902.

SIR: The act of Congress approved July 1, 1902, making appropriations to supply deficiencies in the appropriations for the fiscal year ending June 30, 1902, and for prior years and other purposes (32 Stats., 552), under head of "Public land service" (p. 571), provides inter alia as follows:

"Boundary line, Colorado, New Mexico, and Oklahoma: For the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington, at a rate per mile to be fixed by the Secretary of the Interior, and for the examination in the field of said resurvey, a calculated distance of three hundred and eighty-seven and one-eighth miles, to continue available during the fiscal year nineteen hundred and three, thirty-one thousand five hundred dollars."

Concurring in the recommendation of this Office per letter of July 2, 1902, the Secretary of the Interior, under date of July 3, 1902, authorized this Office to enter into a contract with Howard B. Carpenter providing for the resurvey of the South boundary of Colorado, at the rate of $75 per mile.

Said contract was duly awarded July 3, 1902, to Howard B. Carpenter, United States surveyor, and provided for the resurvey of the boundary line between Colorado, New Mexico, and Oklahoma, liability, $29,000, payable from the quoted appropriation.

[fol. 114] In acknowledging, per letter of October 23, 1902, the receipt of the "original" form of contract and bond awarded Howard B. Carpenter, United States surveyor, the Auditor of the Treasury for the Interior Department called the attention of this office to the terms of the act making the quoted appropriation, and held that in the opinion of his office said appropriation "is not available and can not lawfully be used after the end of the current fiscal year (June 30, 1903) to pay for the survey as contracted for or for the field examination of the same."

By office letter of October 30, 1902, Howard B. Carpenter, United States surveyor, was advised of the construction placed on the terms of the stated appropriation by the Auditor of the Treasury for the Interior Department, and was requested to report as to the present status of the resurveys embodied in his contract of July 1, 1902, and whether or not he would be able to complete the work and make due return thereof within the stipulated time (June 30, 1903). A copy of said letter is herewith inclosed.

This office is now in receipt of a letter, dated Edith, N. Mex., November 22, 1902, signed "Howard B. Carpenter, United States surveyor," in which he reports the present status of the resurveys executed under his contract, and concludes as follows:

"A heavy snow on either of these mountain ranges would block our progress for some time, so that while I may possibly be able to complete the work within the time mentioned, I have great fear that circumstances over which I have no control will make it impossible for me to do so."

In view of the statement made by the Auditor of the Treasury for the Interior Department, to the effect that the appropriation in question will not be available after June 30, 1903, added to the report of Surveyor Carpenter that, for stated reasons and circumstances over which he had no control, it may be impossible for him to complete the work within the stipulated time (June 30, 1903), I have the honor to request that proper action be taken by the Department to the end of causing Congress at the present session to continue the appropriation of $31,500 for the resurvey and reestablishment of the described boundary line and to make the same available during the fiscal year ending June 30, 1904.

The following draft of an item covering the desired extension of the stated appropriation is submitted for the consideration of the Department:

"The appropriation of thirty-one thousand five hundred dollars for the resurvey and reestablishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, contained in the act of Congress approved July first, nineteen hundred and two, making appropriations to supply deficiencies in the appropriations for the fiscal year ending June thirtieth, nineteen hundred and two, and for prior years, and for other purposes, is hereby continued and made available until June thirtieth, nineteen hundred and four."

A copy of letter of Howard B. Carpenter, United States surveyor, is inclosed herewith.

Very respectfully, W. A. Richards, Assistant Commissioner.

The Secretary of the Interior.

Department of the Interior, December 9, 1902.

SIR: I have the honor to transmit herewith a copy of a letter of the 3d instant from the Assistant Commissioner of the General Land Office, with its inclosures, relative to the resurvey and reestablishment of the boundary line between Colorado, New Mexico, and Oklahoma, for which provision was made by an item of $31,500 in the deficiency appropriation act of July 1, 1902 (32 Stat. L., 574).

It appears from the correspondence that this appropriation will not be available after June 30, 1903, and that it may be impossible for the resurvey now being prosecuted to be completed by that date.

I therefore recommend, in accordance with the request of the Assistant Commissioner, that the above-mentioned appropriation of $31,500 for the resurvey and reestablishment of the described boundary line be continued and made available during the fiscal year ending June 30, 1904.

Very respectfully, ——, Secretary.

The Speaker of the House of Representatives.

[fol. 1147]

Department of the Interior,
General Land Office,
Washington, D. C., May 21, 1901.

SIR: The question now arises as to the force and effect to be given to the survey of the south boundary line of the State of Colorado, which forms the north boundary of the Territories of New Mexico and Oklahoma, which was recently made under the act of July 1, 1902 (32 Stat. L., 574), and as to what further action is necessary in the premises.

A recital of the history of this boundary is necessary to a full consideration of the question, and I therefore beg to submit that section 2 of the enabling act of March 3, 1875 (18 Stat. L., 474), under which the State of Colorado was admitted into the Union, fixes this boundary "along the thirty-seventh parallel of north latitude," this being the line which had theretofore been declared the south boundary of the Territory of Colorado in section 1, act of February 28, 1861 (21 Stat. L., 172).

This line was surveyed and marked in 1868 by Ehud N. Darling, surveyor and astronomer, on behalf of the Government, but the accuracy of that survey was afterwards called in question, and many of the monuments along the line having disappeared, the general assembly of the State of Colorado, by its act of April 11, 1901, authorized the appointment of a commissioner to act in conjunction with like representatives to be appointed by authority of the Territorial assembly of New Mexico and of your Department, should such representatives be appointed, or independently if they were not ap-

pointed, for the purpose of fixing and determining "the south boundary line of the State of Colorado, and between said State of Colorado and the Territory of New Mexico, between astronomical monument No. 6, heretofore established on the thirty-seventh parallel of north latitude and at a point on said parallel near Osier, Colo., and extending thence westward along said thirty-seventh parallel, fixed as the southern boundary line of Colorado by said act of Congress and heretofore surveyed by Ehud N. Darling for the United States, and astronomical monument No. 8, also established by said Darling on said parallel at a point about 4 miles west of Arboles, Colo., and to resurvey and reestablish said line, as hereinbefore surveyed and established by said Darling, between said monuments."

No representative was ever designated by your Department to act in conjunction with the commissioner provided for in this act, and this office is not informed as to whether the State ever took any action thereunder.

The condition of this line having been called to the attention of your Department, an examination in the field was made by Examiner Frank M. Johnson, whose report was submitted to your Department by this office on April 30, 1902. This report not only disclosed the fact that some of the astronomical monuments were missing, but showed that the line as established by Darling was not in some places located upon the thirty-seventh parallel. By your letter of May 9, 1902, you stated: "In view of the condition of this line, as declared by this examination, and of its importance as a boundary between the State of Colorado upon the north and the Territories of New Mexico and Oklahoma upon the south, it is deemed advisable that it should be resurveyed and reestablished;" and you accordingly directed this office to at once furnish your Department with an estimate "for the resurvey and reestablishment on the thirty-seventh degree of north latitude between the twenty-fifth and thirty-second degrees of longitude west from Washington to be submitted to Congress."

In response to the recommendations of your Department, Congress by its act of July 1, 1902 (32 Stat. L., 574), made appropriation "For the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, which is coincident with said parallel between the twenty-fifth and thirty-second degrees of west longitude from Washington * * * a calculated distance of 381 miles," and it was pursuant to this act that the line has been resurveyed and reestablished by Howard B. Carpenter, United States surveyor and astronomer, on that parallel.

Prior to this resurvey the town of Edith was supposed to be in the State of Colorado, the old State boundary line being in doubt at that point. Mr. Carpenter's survey shows the greater part, if not all, of the town to be in New Mexico. An examination of the field notes and plats of this survey shows that the line established by Carpenter passes through the villages of Ortiz and La Costilla, all of which have heretofore been assumed to lie in the State of Colorado. This line is continuously marked by iron posts at mile intervals, and with

eight large stone monuments marking the points of astronomical stations where observations were taken for determination of the parallel, and these markings should tend to remove all doubt as to the question of jurisdiction when the line has been properly declared to be the boundary.

[fol. 1148] The question now arises as to what further action is necessary to be taken, and in this connection the fact should be noted that the intention expressed by the general assembly of Colorado, in making provisions for the reestablishment of this boundary, does not fully coincide with the directions given by Congress. The general assembly directed the reestablishment of only a portion of this line, while Congress declared that the entire boundary should be reestablished. The general assembly directed its commissioner "to resurvey and reestablish said line, as heretofore surveyed and established by said Darling, between said astronomical monuments," while it was the intention of Congress that the line should be reestablished and relocated upon the thirty-seventh parallel regardless of any lines or monuments established by Darling.

The power to determine controversies over boundaries arising between States or between the National Government and any State appears to be vested alone in the Supreme Court. Article 9 of the Articles of Confederation, 1777, declared that Congress should "be the last resort of appeal in all disputes and differences now subsisting or that may hereafter arise between two or more States concerning boundary, jurisdiction, or any other cause whatever," but no such power as this was vested in Congress by our Constitution. Its section 2, article 3, declares that the original power of the Government "shall extend to all * * * controversies to which the United States shall be a party; to controversies between two or more States," etc., and under this clause the Supreme Court has repeatedly asserted and exercised its original jurisdiction in hearing and determining controversies over the boundaries between States. (See R. I. v. Mass., 12 Pet., 657; N. J. v. N. Y., 5 Pet., 284; Mo. v. Iowa, 7 How., 606; Fla. v. Ga., 17 How., 478; Ala. v. Ga., 23 How., 505; Va. v. W. Va., 11 Wall., 39; Mo. v. Ky., 11 Wall., 395; Ind. v. Ky., 136 U. S., 479; Nebr. v. Iowa, 143 U. S., 359; Va. v. Tenn., 148 U. S., 503.)

These, however, were controversies arising between individual States, and it was not until the case of the United States v. Texas was considered (143 U. S., 621) that the Supreme Court declared that it had original jurisdiction in a suit in equity brought by the United States against a State to determine the boundary line between that State and a Territory of the United States, and that that question is susceptible of original determination. A careful reading of this case discloses the opinion of the Supreme Court to the effect that the National Government in its relation to State governments occupies the status of a State, and that any controversies which arise between it and States over the boundaries between States and Territories must be settled by a proper action in that court, and nowhere have I been able to find that Congress has ever been recognized as having any power to determine such a question. Congress would,

of course, have the power to fix or alter boundary lines between Territories, but after a boundary line of a State has been solemnly declared by its enabling act it appears that the Supreme Court is the only branch of the Government that has power to determine controversies thereon.

If this conclusion is correct, then neither Congress, by directing the survey of this line, nor your Department, by causing that survey to be made and approved, has performed an act which is binding upon the State of Colorado in the absence of its recognition or ratification of those acts.

It is true that this case does not present a question exactly like the question which arises between the Government and Texas over the boundary in dispute between them. There it was a question as to whether one river or another formed a boundary line, while here there can be no dispute as to the fact that the line between Colorado and New Mexico should be on the thirty-seventh parallel, yet there may be a dispute as to whether the monuments marking the line established by Carpenter are located upon that parallel, and until all possibility for the arising of such a dispute has been eliminated the Government can not with safety recognize the boundary as having been established beyond controversy.

In view of the fact that the executive branch of the Government has no inherent powers in this matter, and has only acted in obedience to the will of Congress in making this survey, it is the opinion of this Office that the result of that survey should be reported to Congress for its consideration and to form the basis of any negotiations which it may deem necessary to induce the State of Colorado to adopt the line so established as the true boundary line or to have the matter determined by proper action in the Supreme Court.

Very respectfully, W. A. Richards, Commissioner.

The Secretary of the Interior.

[fol. 1149]

Department of the Interior,
Washington, June 3, 1904.

SIR: Referring to your letter of May 24, 1904, relative to the resurvey and reestablishment of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma on the line of the thirty-seventh parallel of north latitude, made by Howard B. Carpenter under authority of the act of Congress of the July 1, 1902 (32 Stat., 574), you are directed to make a full report of said survey, and upon the assembling of Congress you will transmit said report to the Department to be submitted to Congress for its consideration.

Very respectfully, E. A. Hitchcock, Secretary.

The Commissioner of the General Land Office.

Office of Secretary of State,
Denver, Colo., July 11, 1904.

DEAR SIR: Would you kindly inform this office if the boundary line between Colorado and the Territory of New Mexico has been established by the United States Government?

We have several inquiries from people living at or near the line who are desirous of knowing whether they are residents of the State of Colorado or of the Territory of New Mexico.

If the line has been established, please give us all the data regarding the same.

An early reply will greatly oblige.

Very truly, yours, James Cowie, Secretary of State, by Timothy O'Connor, Deputy.

Hon. Ethan Allen Hitchcock, Secretary of the Interior, Washington, D. C.

August 1, 1904.

SIR: In a letter of the 11th ultimo to the Department you asked to be advised whether or not the boundary line between the State of Colorado, and the Territory of New Mexico has been established by the Government; and, if so, to be supplied with all of the data regarding same.

In answer to your letter I inclose copy of the report thereon by the Acting Commissioner of the General Land Office, under date of the 28th ultimo, which supplies you with all the information now available respecting the boundary line.

Very respectfully, ——— ———, Acting Secretary.

The Secretary of State, State of Colorado, Denver, Colo.

Department of the Interior,
General Land Office,
Washington, D. C., July 28, 1904.

SIR: I have the honor to acknowledge the receipt, by your reference for report in duplicate and return, of a letter dated July 11, 1904, from the secretary of state, Denver, Colo., relative to the establishment of the boundary line between Colorado and New Mexico and requesting all data relative to the same.

In reply I have the honor to report that under the provisions of the act of July 1, 1902 (32 Stats., 574), the south boundary of Colorado was resurveyed and reestablished by Howard B. Carpenter, United States surveyor and astronomer, on the thirty-seventh parallel of north latitude in the years 1902 and 1903, and the said resurvey and reestablishment was approved an daccepted by this office February 25, 1904

[fol. 1150] The question having arisen as to the force and effect to be given to this resurvey, this Office, on May 24, 1904, submitted to the Department a letter expressing the opinion that the "result of that survey should be reported to Congress for its consideration and to form the basis of any negotiations which it may deem necessary to

induce the State of Colorado to adopt the line so established as the true boundary line, or to have the matter determined by proper action in the Supreme Court."

On June 3, 1904, the Department directed this Office to make a full report of said survey, and upon the assembling of Congress to transmit said report to the Department to be submitted to Congress for its consideration.

It is the understanding of this Office that no steps are to be taken concerning the status of the lands affected by the resurvey pending action upon the report to be submitted by this Office to the Department for transmittal to Congress at its next ensuing session.

The letter from the secretary of the State of Colorado is herewith returned.

Very respectfully, J. H. Fimple, Acting Commissioner.

The Secretary of the Interior.

[fol. 1151] PLAINTIFF'S EXHIBIT No. 17

Senate, 60th Congress, 2d Session

Document No. 604

Boundary Line Between Colorado and Oklahoma and New Mexico

Message from the President of the United States returning, without Approval, Senate Joint Resolution Number 78, "Establishing the Boundary Line Between the States of Colorado and Oklahoma and the Territory of New Mexico."

December 19, 1908.—Read; ordered to be printed.

To the Senate:

I return herewith, without approval, Senate joint resolution number 78, "Establishing the boundary line between the States of Colorado and Oklahoma and the Territory of New Mexico," for the reasons set forth in the following communication of the Attorney-General:

I have the honor to report, with respect to joint resolution (S. R. 78), referred by you to this department, that the purpose of the said resolution appears to be to correct the boundary line between the Territory of New Mexico and the States of Colorado and Oklahoma. The practical effect of establishing the new boundary line, so far as the State of Colorado is concerned, would be to remove from the jurisdiction of that State and add to the Territory of New Mexico a strip along nearly the whole of the southern boundary of the said State, in which there are located at least five post-offices and an appreciable number of inhabitants. So far as I am aware no action has been taken by the legislature of the State of Colorado assenting to or accepting the location of the boundary as proposed in this re-

solution, and, from such inquiry as I have been able to make in the very limited time since the resolution reached me, I am led to think that such assent or acceptance on the part of the State is improbable. Under these circumstances I think it is of very doubtful expediency to have the line mentioned in the resolution accepted by the United States as the true boundary. It is not necessary to express an opinion as to the legal effect of such a resolution upon the rights of the United States or of the Territory of New Mexico or the duties of federal or territorial officers; but it is clear that the resolution would not be binding upon the State of Colorado, and its adoption might lead to conflicts of jurisdiction within the long strip of territory to which I have referred and possibly to the escape from legal punishment of those guilty of crimes committed within the said strip. If it is deemed desirable to establish the true boundary line, an appropriate method to effect this would be to invoke by appropriate proceedings the original jurisdiction of the Supreme Court.

[fol. 1152] I therefore respectfully advise that the joint resolution in question do not receive your signature.

Theodore Roosevelt.

The White House, December 19, 1908.

[S. R. 78, Sixtieth Congress of the United States of America; at the second session, begun and held at the city of Washington on Monday, the seventh day of December, one thousand nine hundred and eight.]

Joint Resolution Establishing the Boundary Line Between the States of Colorado and Oklahoma and the Territory of New Mexico

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the establishment of the boundary line between the States of Colorado and Oklahoma and the Territory of New Mexico, authorized by the Act of Congress approved July first, nineteen hundred and two (Thirty-second Statutes at Large, page five hundred and seventy-four), "For the resurvey and reestablishment on the line of the thirty-seventh parallel of north latitude * * *," it being the boundary line established by the enabling Act (March third, eighteen hundred and seventy-five; Eighteenth Statutes at Large, page four hundred and seventy-four) under which Colorado was admitted into the Union; said survey having been made and monuments set on said line and having been approved and accepted by the Interior Department, under date of February twenty-fifth, nineteen hundred and four, and known as the Carpenter survey, be, and the same is hereby, accepted by the United States on its part as the proper location of the thirty-seventh parallel and the true boundary line between the said States and Territory.

J. G. Cannon, Speaker of the House of Representatives.
Charles W. Fairbanks, Vice-President of the United States and President of the Senate.

I certify that this joint resolution originated in the Senate.
Charles G. Bennett, Secretary, by H. M. Rose, Assistant Secretary.

[fol. 1155] PLAINTIFF'S EXHIBIT No. 18

Special Instructions for the Survey of Public Lands in New Mexico

Department of the Interior

U. S. Surveyor General's Office for the District of New Mexico

Santa Fe, New Mexico, June 20, 1907.

Mr. A. E. Compton, U. S. Deputy Surveyor, Newton, Illinois.

DEAR SIR: Your contract No. 408, dated this day, provides for the survey of the following line, to-wit:

The exterior boundaries and subdivisional lines of fractional township 24 north, range 4 east; north boundary and subdivisional lines of fractional township 13 north, range 2 west; north and east boundaries and subdivisional lines of township 23 north, range 2 east; south and west boundaries and subdivisional lines of fractional township 32 north, range 4 west; the east boundary and subdivisional lines of fractional township 16 north, range 3 west; west boundary and subdivisional lines of fractional township 32 north, range 7 east; the survey of all valid unsurveyed small holding claims which may be found in any of said townships; also the retracement and reestablishment of such lines of public surveys as may be found to be absolutely necessary. Total liability not to exceed $5,200.00, payable from appropriation for the survey and resurvey of public lands for the fiscal year ending June 30, 1907.

* * * * * * *

[fol. 1154] Tp. 32 N., R. 4 W.

South boundary.—Run West from the established corner of Tps. 31 and 32 N., Rs. 3 and 4 W., establishing regular corners, except that at 5 miles 77.59 chs. you will establish the corner of Tps 31 and 32 N., Rs. 4 and 5 W.

West boundary.—Thence run due north setting regular corners to an intersection with the Colorado-New Mexico boundary established by H. B. Carpenter in 1902-3, where you will establish a proper closing corner with connection distance to the nearest corner of said boundary.

East boundary.—By retracing the east boundary of sec. 36, and farther if found necessary, you will ascertain if the same is defective in courses or distances. You will resurvey the east boundary of sec. 12, and set a closing corner at intersection of the Carpenter line as before directed; and destroy any other closing corner which you may find to remain upon a former State bdry.

Plaintiff's
Exhibit No. 19 1156

Fractional *Township N°* 32 North *Range N°* 4 West of the New Mex Principal *Merid*

G f F e E d D o C b B

g Sec 6 Sec 5 Sec 4 Sec 3 Sec 2

Colorado

H

San Juan Riv. 96.15 M 97M 98M Colorado & New Mexico Corrales Sta. 99.103 M East Boundary Line 100 M San Juan Riv. 101 M (true pt) 101.2 M

h

Sec 7 353.42 — 44.14 | 35.57 | 51.55 | 51.53 — 34.63 | 40 | N 89 58 E

Sec 8 366.44 — 45.76 | 51.54 | 51.59 | 51.63 | 51.68 — West

Sec 9 366.96 — 45.89 | 51.77 | 51.75 | 51.73 | 51.71 — N 89 56 W

Sec 10 366.68 — 45.89 | 51.75 | 51.70 | 51.64 | 51.59 — S 89 50 W

Sec 11 365.12 — 45.78 | 51.49 | 51.35 | 51.21 | 51.07 — 45.50 | 51.00 — S 89 43 W

I

77.40 — 34.83 | 34.90 | Sec 18 619.72 | 34.96 | 35.03 | N 89 57 E

79.80 — Sec 17 640 — N 89 55 W

80.30 — Sec 16 640 — Canon Quinto — N 89 46 W

80.20 — Sec 15 640 — S 89 54 W

80.30 — Sec 14 640 — S 89 45 W

K

77.53 — 35.08

79.85

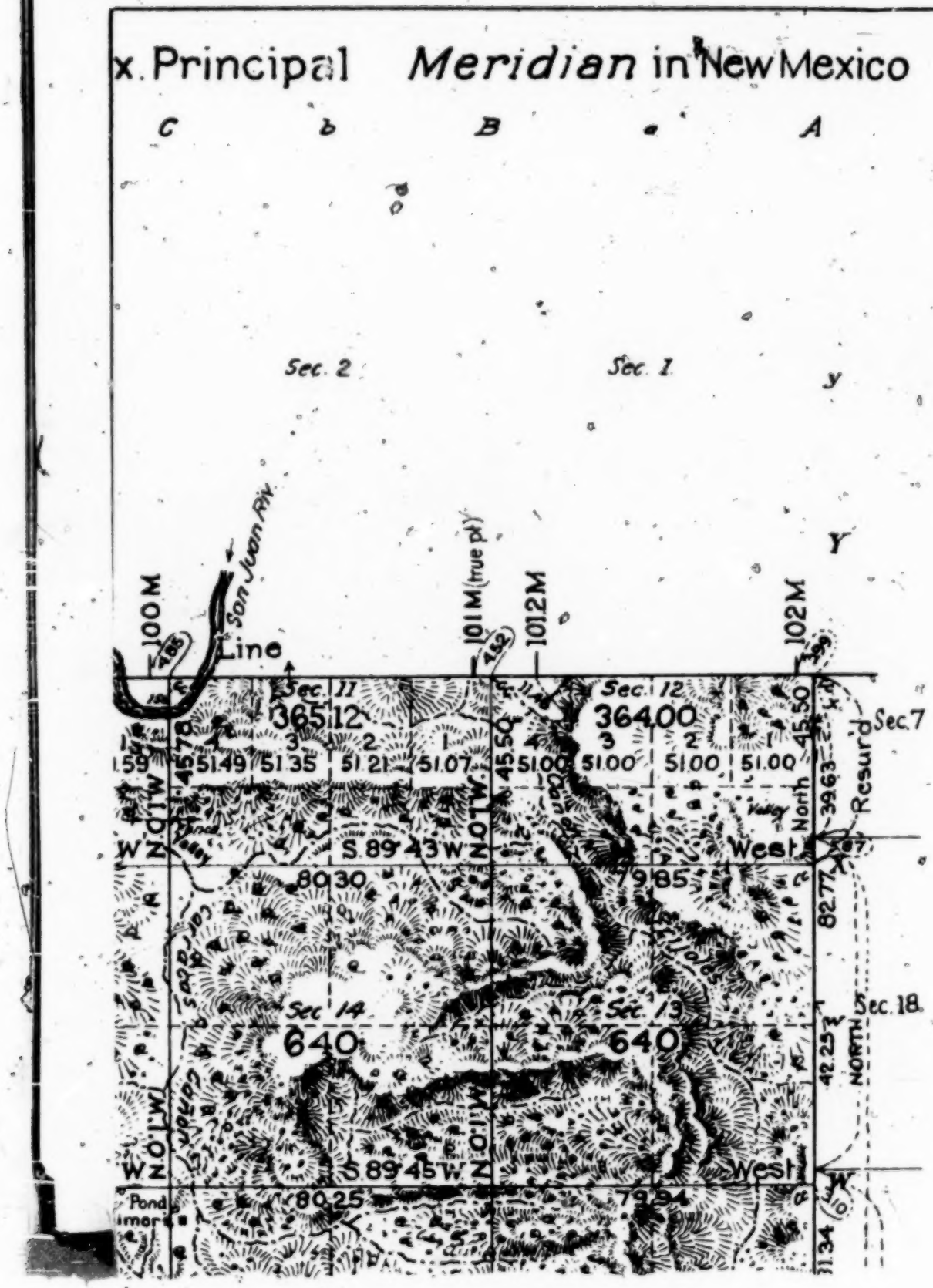
80.32

80.18 — Pond

80.25

P]
E:

x. Principal *Meridian* in New Mexico



154M 155M 156M 157M 158M 159M

Retraced 81.00 | 79.00 | Colorado & New Mexico boundary line | Retraced 82.21

9.62 | 7.09 | 8.20 | 8.30 | 8.43 | 8.53

68.75 | 68.90 | 69.20 | 69.40 | 68.90 | 68.60

Sec. 19 — 540.02 — Sec. 20 — 552.40 — Sec. 21 — 554.40 — Sec. 22 — 553.20 — Sec. 23 — 550.00 — Sec. 24 — 547.28

Sublett — Conejos — Road to Antonito — Spring — Valley — Cabresto

N 0°3' W | N 0°3' W | N 0°3' W | N 0°2' W | N 0°1' W | N 0°1' W

S 89°47' E | N 89°47' W | S 89°59' W | N 89°59' W | S 89°55' W

Sec. 30 — 628.00 — Sec. 29 — 640 — Sec. 28 — 640 — Sec. 27 — 640 — Sec. 26 — 640 — Sec. 25 — 640

Big Horn Peak — Mesa

S 89°49' E | N 89°0' W | N 89°57' W | S 89°58' W | S 89°57' W

Carson — Jarosa — Arroyo Cieneguilla — Arroyo Tapiado

Crestonio — Wit. ¼ Cor. 10 1/4 K S E

Sec. 31 — 628.52 — Sec. 32 — 640 — Sec. 33 — 640 — Sec. 34 — 640 — Sec. 35 — 640 — Sec. 36 — 640

M. Quintana — J. B. Durán — J. B. Gallegos — Cuna de Onda — Los Pinos — J. N. Ruybelids — Los Pinos River — J. C. Sisneros — San Miguel Chapel — J. D. & A. Pender — Pinos Spring

North

N 0°3' W | N 0°2' W | N 0°1' W

S 89°51'

39.98

Resurveyed N 89°57' W.

Wit. Sec. Cor. (Ch.) N 89°57' W.

Total number of Acres 10953.82

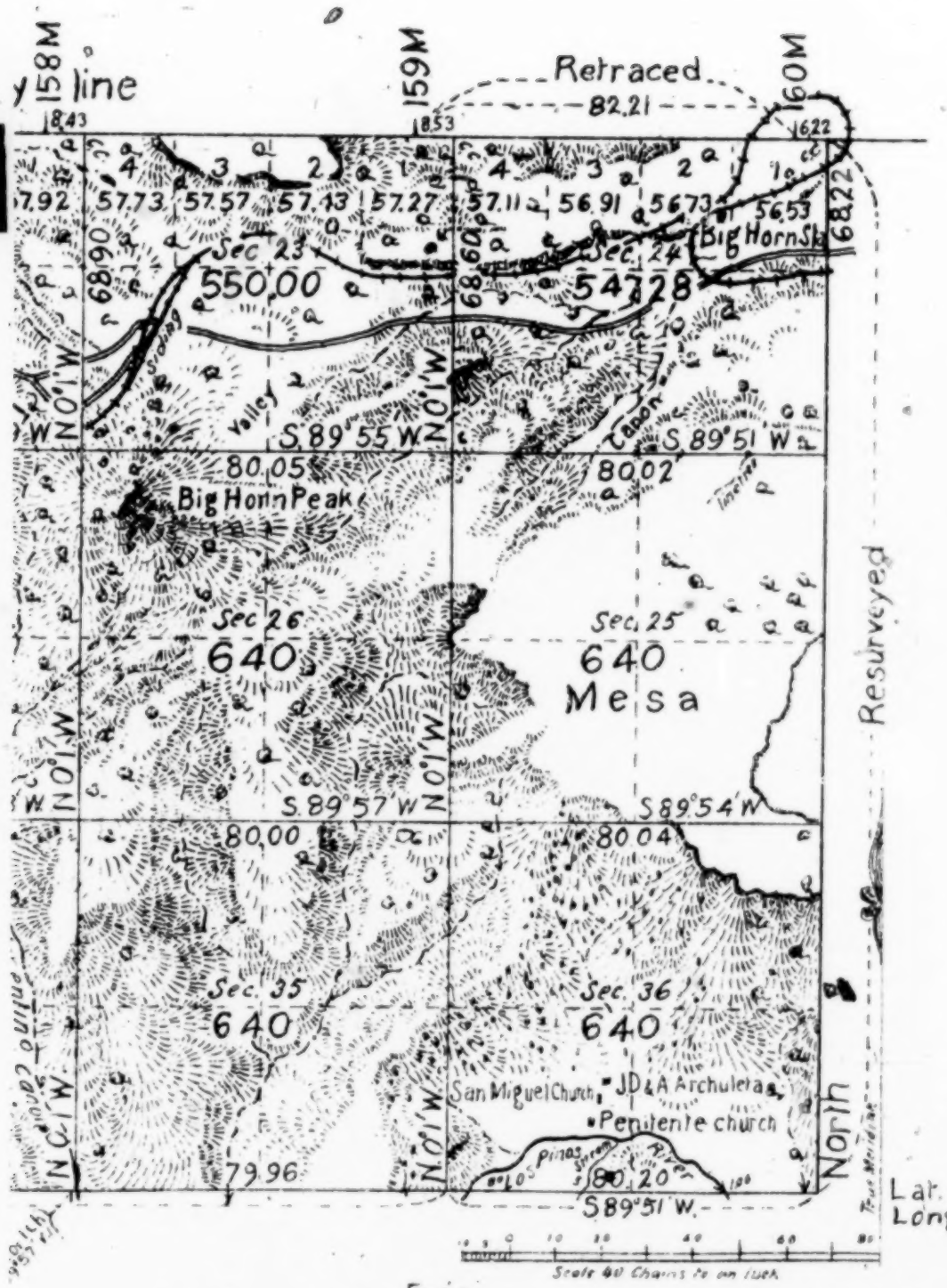
Scale 40 Chs.

Surveys Designated	By Whom Surveyed	Date of Contract N° 408	Amount of Surveys M. Chs. Lks.	When Surveyed	
Township lines W	Alonzo E Compton	June 20, 1907	2 - 68 - 75	July 16, 08	
Subdivisions	" " "	" " "	26 - 22 - 33	July 9-July 18, 08	
Connections	" " "	" " "	56 - 39	" 3 "	
Rein N.M. & Colo boy line	" " "	" " "	3 - 02 - 21	July 10-18, 08	
Resur E & S bdries	" " "	" " "	8 - 66 - 64	June 30-8 '08	
Colo-N M boy line	H B Carpenter			1902	

Frac.

The above Map of Township N° 3 Principal Meridian in New notes of the survey thereof on file in t

Surveyor General's Office, Santa Fe N.M April 22, 09



Lat. 36°57'N.
Long. 106°08'W.

Certificate

I hereby certify that this tracing of Frac. T. 32 N. R. 7 E. N.M.P.M. is a true and correct copy of the official plat of said Township on file in this office.

U.S. Surveyor General's Office.
Santa Fe, N.M. Sept. 16, 1922.

Manuel A. Sanchez
Surveyor General.

Frac.
The above Map of Township No. 32 North *of Range No.* 7 East of the Principal *Meridian* in New Mexico *is strictly conformable to the field notes of the survey thereof on file in this Office which have been examined and approved.*

Surveyor General's Office,
Santa Fe N.M April 22,09

W. W. Mark
Sur. Gen.

Subdivision.—If the east boundary prove defective in course, (see pages 79 to 82 and Manual), establish a sectional guide meridian as shown in figures 7, plate 6, and where section lines fail to close within limits of course to the east boundary, set closing corners thereon. The remaining subdivisions will be regular and as shown in the diagram.

Tp. 32 N., R. 7 E.

Complete the exteriors and subdivisions in the same manner as in Tp. 32 N., R. 4 W., and as per diagram.

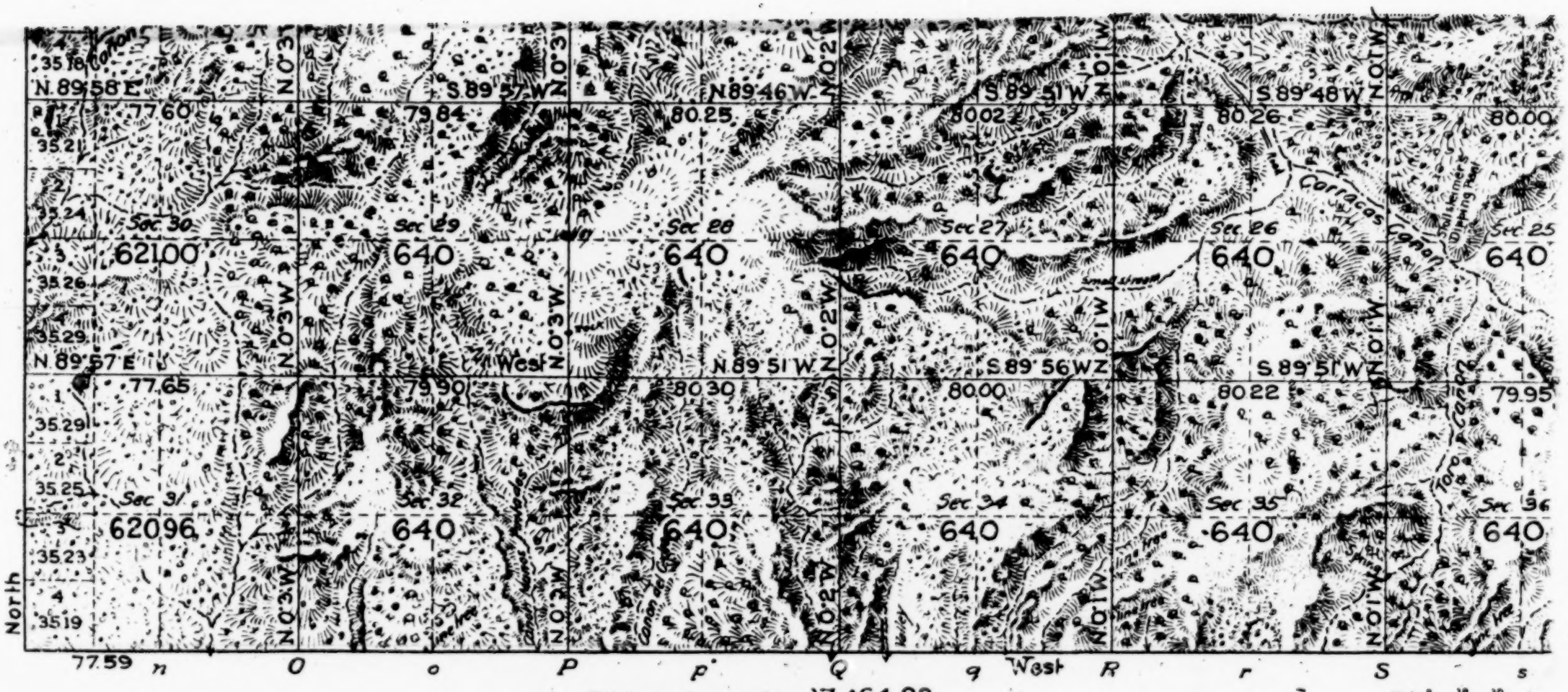
[fol. 1155] Certificate

I hereby certify that the foregoing is a true and exact copy of the original instructions to govern the survey of T. 32 N., R. 4 W and T. 32 N., R. 7 E. as drafted by this office and approved by the Commissioner of the General Land Office, under contract No. 408, dated June 20, 1907.

Manuel A. Sanchez, U. S. Surveyor General. (Official Seal, United States Surveyor General's Office, New Mexico.)

Surveyor General's Office, Santa Fe, New Mexico, September 12, 1922.

(Here follow Plaintiff's Exhibits Nos. 19 and 20, marked side folio pages 1156 and 1157.)

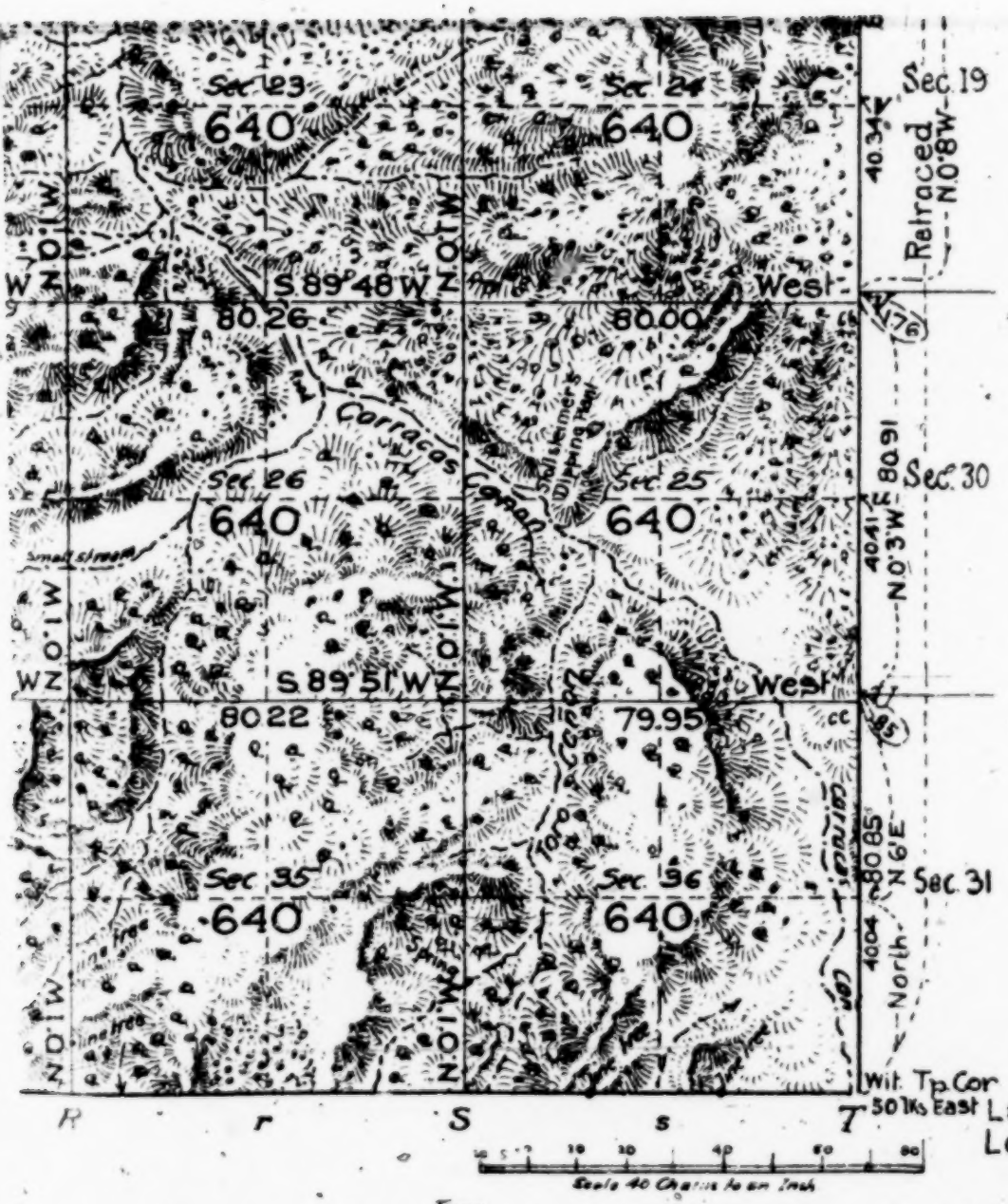


Total number of Acres 17,464.82

Surveys Designated	By Whom Surveyed	Date of Contract 408	Amount of Surveys M Chs Lks	When Surveyed	
Township lines S&W	Alonzo E. Compton	June 20, '07	10 - 08 - 89	Oct 30 - Nov 9, '07	
Subdivisions	" " "	" " "	41 60 - 69	Nov. 5, 07 Apl 16 '08	
Connections	" " "	" " "	48 - 51	" 4 " " 15	
Retraced E. bdy	" " "	" " "	4 - 5 - 87	" 5 " Nov 9	
Colo & N.M. bdy line	H. B. Carpenter		"	" 14 & 15, 02	
Resur E. bdy	Alonzo E. Compton	" " "	0 - 45 - 50	" 9, 07	

The above Map of Frac Township No
Principal Meridian in New
notes of the survey thereof on file in t

Surveyor General's Office
Santa Fe, N.M. April 22, 1909



Certificate.

I hereby certify that this tracing of Frac. T. 32 N., R. 4 W. of the N. M. Principal Meridian is a true and correct copy of the official plat of said township on file in this office.

U.S. Surveyor General's Office
Santa Fe, N.M. Sept. 16, 1922.

Manuel A. Sanchez
U.S. Surv. Gen'l.

The above Map of Frac Township No. 32 North, of Range No. 4 West of the Principal Meridian, in New Mexico is strictly conformable to the field notes of the survey thereof on file in this Office which have been examined and approved

Surveyor General's Office
Santa Fe. N.M April 22, 1909

Jno. W. March
Sur'r Gen'l